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THE CANADIAN JOURNAL.

NEW SERIES.

No. LXXIX.—NOVEMBER, 1873.

ANCIENT CARVED STONE,

FOUND AT CHESTERHOLM, NORTHUMBERLAND, ENGLAND.

BY THE REV. JOHN McCAUL, LL.D.,

PRESIDENT OF UNIVERSITY COLLEGE, TORONTO.

In the Gentleman's Magazine for 1833, p. 597, a stone, which is placed in the wall of the farm-house of Low Foggerish, about half-a-mile south of Chesterholm, is figured, and the following remarks are given by Mr. Urban's correspondent V. W.=Rev. John Hodgson:—

Here we have the umbilicated *moon* in her state of opposition to the sun, and the sign of fruitfulness. She was also, in the doctrines of Sabaïsm, the northern gate, by which Mercury conducted souls to birth, as mentioned by Homer in his description of the Cave of the Nymphs, and upon which there remains a commentary by Porphyry. Of this cave Homer says:

> Fountains it had eternal, and two gates,
> The northern one to men admittance gives;
> That to the south is more divine—a way
> Untrod by men—t' Immortals only known.

The *Cross*, in gentile rites, was the symbol of reproduction and resurrection. It was, as Shaw remarks, "the same with the ineffable image of eternity that is taken notice of by Suidas." The *crescent* was the lunar ship or ark that bore, in Mr. Faber's language, the Great Father and the Great Mother over the waters of the deluge; and it was also the emblem of the boat or ship which took aspirants over the lakes or arms of the sea to the Sacred Islands, to which they resorted for initiation into the mysteries; and over the river of death to the man-

sions of Elysium. The *Cockatrice* was the snake god. It was also the basilisk or cock-adder. "Habet caudem ut coluber, residuum vero corpus ut gallus." The Egyptians considered the basilisk as the emblem of eternal ages: "quia vero videtur ζωῆς κυριεύειν καὶ θανάτου, ex auro conformatum capitibus deorum appingebant Æ yptii." What relation had this with the Nehustan or Brazen Serpent, to which the Israelites paid divine honours in the time of Hezekiah? What is the circle with the seasons at the equinoxes and solstices marked upon it?—the signs of the four great Pagan festivals, celebrated at the commencement of each of these seasons? The corner of the stone, which is broken off, probably contained some symbol. I am not hierophant enough to unriddle and explain the hidden tale of this combination of hieroglyphics.

In the *Lapidarium Septentrionale*, n. 270, a very superior woodcut of this stone (copied in the prefixed lithograph) is given, and Dr. Bruce offers the following observations:—

The carvings on this stone are probably [1] Mithraic emblems. It were a vain task to attempt to unveil the enigma concealed under each. Probably the original upholders of these ancient mysteries could not themselves give an intelligible account of them.

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[1] Many memorials of the worship of Mithras have been found in Britain, and some of them are symbolical. In the *Lapidarium Septentrionale*, n. 150, a scene of this class is represented. A lion stands over a human figure lying down, with one paw raised to the head of the figure, and at the side is another human figure seated, with apparently a flag in one hand and a wand in the other. Mr. Hodgson regards the seated figure as representing Mithras, and adds—"I would hazard a conjecture that the whole relates to the Mithraic rites called Leontica." This conjecture is certainly well founded, for this scene of a lion standing over a human figure lying down is often represented on Mithraic stones. See Mr. King's Gnostics, Plate ii. 1, and xi. 4. The term *Leo* was the designation of a person admitted to the fourth step among Mithraists, and part of the ceremonial of initiation was for the neophyte to simulate death.

The seated figure I take to be a representation of the officer under whose supervision the candidates for the fourth step passed through the preliminary rites, and I identify him with the *pater leonum*, or, it may be, *pater patrum* or *pater sacrorum*, under whom *prosedente* the ceremonial took place. See Henzen, nn. 5846, 6038, 6042a, 6042b. Part of a similar figure seems to be on a fragment figured n. 68, *Lapidarium Septentrionale*. The *pater patrum* may be regarded as=Grand Master or his Deputy, *pater leonum*=Master of the Lion Lodge, and *pater sacrorum*=Chaplain. In n. 65 of the same work, an altar is figured, bearing an inscription, DEO, "To the God." Dr. Bruce properly refers it to Mithras, but has not noticed that the palm-branch on each side, with the wreath or crown in which the letters DEO are cut, are symbols of INVICTO, a term frequently applied to this God. We have also an example of the single word INVICTO, "To the unconquered one"—denoting Mithras. See Henzen, n. 5846.

Mr. Hodgson's and Dr. Bruce's belief of the Mithraic character of the carvings on the Chesteholm stone may have been chiefly derived from the presence of the objects on it identified with the sun and moon, as representations of them are often found in Mithraic scenes. Nor would the introduction of the cross be inconsistent, as there can be no doubt that occasionally Christianity and Mithraism were mixed. See Mr. King's Gnostics, p. 48, and my Christian Epitaphs, p. 57.

The learned editor then cites the principal parts of Mr. Hodgson's remarks, as given above. On comparing the two representations of the carvings on the stone, it appears that the twisted snake-like form of the tail of the bird, as given in the sketch supplied by Mr. Hodgson, is not observable in Dr. Bruce's wood-cut. Nor can there be, in my judgment, any reasonable doubt that the bird [2] was intended to represent a cock. As to the circular object in the right hand angle, with intersecting lines, it seems to me to be nothing more than the representation of an ordinary loaf of ancient Italian bread, which, we know, was thus divided into four parts—*quadræ*. Thus we have in Virgil, *Æn.* vii., vv. 114, 115—

> *Et violare manu malisque audacibus* orbem
> *Fatalis crusti, patulis nec parcere* quadris.

And in his *Moretum*, vv. 48, 49—

> *Lævat opus, palmisque suum dilatat in* orbem
> *Et notat, impressis æquo discrimine* quadris.

Quadra thus may be used here for *quarta*, and the two objects—the *gallus* (standing for *Galli*,) and the *quadra* (standing for *quarta*)—may symbolize the *Gallorum Quarta*, the [3] 4th cohort of Gauls. Now, from the *Notitia* we learn that this cohort was stationed in Britain, "*per lineam valli*," at *Vindolana*, and two altars (with a commemorative slab), erected by commanding officers of this cohort (see *Lapidarium*, nn. 244, 251, 262), that were found at Chesterholm, identify the two places. So far there can, I think, be little or no doubt of the meaning of the symbols. But what are the objects represented at the vertical angle?

Mr. Hodgson regarded them as the sun, the moon, and the cross; and his opinion seems to be correct as to the first two, so that the only question regarding them is—What do they symbolize? A reference to the use of the representations of these celestial bodies on ancient Roman coins will prove that they were on them the symbols of eternity. Thus on a coin described by Eckhel, vii., p. 181, we find the heads of *Severus* and *Julia Domna*, the first *radiatum*, the

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[2] On an ancient monumental stone of the Roman period, lately found at Sea Mills, near Clifton, in Somersetshire (for a drawing of which I am indebted to the Rev. H. M. Scarth), a similar bird is represented.

[3] We have memorials of three regiments of Gauls in Britain—*Ala II Gallorum Sebosiana, Cohors II Gallorum,* and *Cohors IIII Gallorum.*

second *impositum lunæ.* On this that learned numismatist remarks:—"*Placuit istud Augustorum par specie Solis et Lunæ proponere, quoniam hæc astra æterna credita, et æternitas ipsis etiam Augustis aut adficta, aut vota.*" In confirmation of this view, he cites two inscriptions, given by Gruter, p. xxxii. 10, and p. xlii. 2:—"*Soli· æterno· Lunæ· pro· Aeternitate· imperii· et· salute· Imp· Ca * * Septimii· Severi·*" &c., and "*Lunæ. Aeter. Sacrum. pro· salute. Imp· Caes· L· Septimi· Sev·*," &c. See also coins of Decius and Etruscilla, and Rasche's Lexicon, under *Sol* and *Luna.*

The sun and [4]moon, then, on this stone, may be symbols of the Emperor and Empress of the period, and who they were may be generally inferred from the cross (if it be one) that is between the disk and the [5]crescent, for on this supposition we should look, in the first instance, for these imperial personages in or after the time of Constantine. If we select the time of Constantine, the objects may stand for the Emperor himself and the Empress Fausta (up to 327 A.D., when she is said to have been killed), or, rather, the mother-Empress Helena, celebrated for her attachment to the Christian religion, and the reputed discoverer of the true cross. If we prefer the period after Constantine, these objects may symbolize any Christian sole Emperor and Empress down to the final withdrawal of the Roman troops from Britain, and thus may represent Theodosius the Great and Galla in 392 A.D., or, perhaps, Theodosius II. and Eudocia, in 423 or 424 A.D. If the object be not a cross, then I suspect that it

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[4] The simplest form for representing these objects on stone, so as to distinguish them, would be, as here, by a disk and a crescent.

[5] Mr. Grover, in an article on "Pre-Augustine Christianity in Britain," in the Journal of the Archæol. Association, xxiii, p. 229, remarks that "the crescent was a conspicuous characteristic of the faith, as shewn in the catacombs (see Didron, p. 159)"; and also with special reference to this stone—"It represents, amongst other devices, the cross and the crescent in conjunction, as in the tomb of the martyr Lannus of the catacombs. There is no doubt but these combined symbols refer to Christianity. And what is more remarkable is that the stone was found at Chesterholm (*Vindolana*), which was garrisoned by the fourth cohort of Gauls—Gaul, as we know, being completely Christianized at a very early period. The other devices, the sun, the cock, the triangle, &c., would lead to the assumption that the stone was the work of one of the Gnostic Christians." In the copies that I have seen of the epitaph of Lannus, it is not quite clear that the object (placed over XPI., the contraction of CHRISTI) is a crescent; and there are examples of the use of this figure on Pagan altars, *e. gr.*, in n. 553 of the *Lapidarium Septentrionale* an altar is figured that bears the crescent between two gamma-shaped crosses. The cross, moreover, which is cut above that inscription, is not of the same form as that on the Vindolana stone, as it more closely resembles that which is called the Greek cross.

may be a [6]monogram for IT=*iterum*, the tall I being crossed or the T elongated; and suggest, as the most probable solution consistent with this view, that the sun and moon are used, as the heads representing them are on a unique coin of Postumus, described by Eckhel, vii. p. 441, with the following comment:—*Solem et Lunam æternitatis esse symbola satis hactenus vidimus. In præsente numo aliam allegoriam constituunt, nimirum præclaris suis factis inclarescere Postumum, et esse late conspicuum æque ac solem et lunam astra lucentissima.* Postumus held the office of Governor of Gaul, to which he had been appointed by Valerian, when he took the imperial title, and he entered on his second Consulship in that Province. According to this view, the sun, moon and monogram stand for Postumus Augustus, Consul for the second time, *i. e.*, A.D. 259. This solution has the additional recommendation of accounting in some degree for the use of symbols, for in that year Valerian and Gallienus were really the Emperors, and Æmilianus and Bassus the Consuls, whilst Postumus was but a usurper of only one year's standing, not sufficiently firmly established to warrant the safety of recognizing him in the dignities that he had assumed. The 1st cohort of Dacians in Britain adopted the title *Postumiana*, as we know from altars found at Burdoswald,=*Amboglanna*, in Cumberland (see *Lapidarium Septentrionale*, nn. 359, 360), but no year is given for this adoption, and I suspect that the epithet was not publicly used before at least A.D. 262, when Postumus celebrated his *ludi quinquennales* and took the title *Germanicus Maximus*.

According to this view, then, the objects carved on this stone may be regarded as symbolical of some such inscription as—POSTVMO· AVG· COS· II· COH· IIII· GALLORVM. But, as I have not yet touched the question whether it is a cross or not, I must now take up this subject. First of all, a distinction must be made between Pre-Christian and Christian crosses. Of the former there are several examples on stones found in Britain (see *Lapidarium Septentrionale*, nn. 237, 366, 546, 547, 553), but, so far as I know, no instance, except [7]one that is very doubtful, has been found there of the Egyptian *tau* (T).

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[6] Monograms, of even three or four letters, are common in inscriptions.

[7] In an article on "the Pre-Christian Cross," in the Edinburgh Review for January, 1870, it is stated that "a solitary instance of its use, as a sepulchral symbol, has been discovered, if we are not mistaken, in our own country. See Archæ. Journal, vol. i., p. 412, fig. 4."

Even the monogram (Constantinian, as it is called from that Emperor's use of it) is found on some Athenian tetradrachms and bronze medallions of the Ptolemies. There is, also, a similar combination of the letters X and P in the legend on a medallion of the Emperor Decius. But the object that appears on the Chesterholm stone seems unlike any other Pre-Christian example that I have seen, for it more nearly resembles the Latin cross. Now, there is no example of this form in the time of Constantine, but it often appears on [8]coins of some later Emperors, *e. gr.* on a coin of Gratian's, assigned to 375 A.D., it is seen high up in the field, and before this on the *globus cruciger* [9]of Valentinian I. But on stones it has not been found, so far as I am aware, at any date before the beginning of the fifth century. In the frontispiece of "Christian epitaphs," I figure the stone, on which there is the first example of this cross in dated epitaphs. The inscription shows that its date is [10]407 A.D. See De Rossi, *Inscript. Christianæ Urbis Romæ*, n. 576. It may be urged

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As I have referred to this article, I may add that the theory that is given in it of the origin of the universal use of this symbol by various nations before Christianity, viz., that "the decussated figure, whether in a simple or a complex form, symbolised the traditional happy abode of their primeval ancestors, that 'Paradise of Eden towards the East,' as we find it expressed in the Hebrew," and that a circle and a cross were selected "the one to denote a region of absolute purity and perpetual felicity; the other, those four perennial streams that divided and watered the several quarters of it," seems to me remarkably unsatisfactory.

[8] It is extremely difficult, if possible, to fix the dates of the appearance of Christian symbols on imperial coins. The subject has engaged the attention of eminent scholars, but nothing sufficiently precise has resulted from their investigations. See "Ricerche critiche intorno alle medaglie di Costantino Magno e de sui figluoli insignite di tipi e di simboli Cristiani," by M. l'Abbé Cavedoni, Modena, 1858, and "Numismatica Costantiniana portante segni di Cristianesimo," by Padre R. P. Garrucci, Roma, 1858.

[9] One of the *insignia* on coins of the Pagan Emperors was a *globus* (representing the earth) in the right hand, with a figure of Victory standing on it; the Christian Emperors, beginning, I believe, with Jovian, substituted the cross for Victory.

[10] The monogrammatic cross and the monogram were certainly in use long before this, and seem to have been for some time the recognized symbols of Christianity. It is difficult to assign a satisfactory reason for the lateness of the period at which the Latin cross was used as the symbol of the Christian faith. It has been suggested that fear of the consequences may have deterred believers from publicly using it, but this does not account for the absence of it during the reigns of Constantine and of his Christian successors down to the beginning of the fifth century. Another solution is derived from the great reverence in which the cross was held, that forbade the common use of a symbol so highly venerated.

that, although so late in its introduction at Rome, it may have been used at an earlier period in the Provinces. Thus Martigny remarks :

"Peut être faut-il dire que la croix parut plus tôt dans certaines provinces où le Christianisme fut plus tôt émancipé qu' à Rome, et M. De' Rossi le fait remarquer pour l' Afrique, et pour Carthage en particulier, qui, dès le quatrième siècle, fournit des marbres munis de cet auguste signe."

This supposition seems to me very probable, especially as to Gaul and Britain, but no example on stone has been found, so far as I am aware, of which the date can be positively ascertained, in either of these countries, nor in Italy, Germany, or Spain, before that of 407 A.D. If this object, then, on the Vindolana stone be a Latin cross, and the sun and moon represent the Emperor and Empress, the time must be referred to [11]423 or 424 A.D., when Theodosius II. was Augustus and Eudocia, Augusta.

But we may interpret the sun and moon otherwise. They may be the common accessories in the representations of the crucifixion, believed by some to symbolize the darkness from the sixth to the ninth hour. We might expect them, however, as such, on the right and left hand of the cross. This belief—that the object is a cross—may be further supported by the triangular form of the stone, the triangle being a recognized Christian emblem of the Trinity. It accords, also, with the early history of Christianity in Gaul, from which it appears that there were churches at Vienne and Lyons before 177 A.D. when Irenæus succeeded Pothinus, and that in 250 A.D. seven missionaries were sent into that Province; consequently a supposition that the 4th cohort of Gauls was composed, in the 4th century or the beginning of the 5th, either wholly or chiefly, of those professing the Christian faith, is not unreasonable.

We may draw this article to a close, by stating the objections to the opinion that the object is a cross. First, then, it is unlike the examples of the Latin cross of the 4th century or the beginning of the 5th, as in these the limbs are in the form of wedges, whereas in this the arms do not expand, but [12]taper. Nor can it be regarded,

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[11] This is beyond the most probable date of the *Notitia*, and although some of the troops mentioned in it may have remained in their stations up to the final withdrawal from Britain, yet it does not seem safe, for any uncertain date of an act of a military body named in that work as quartered in Britain, to go lower than the year 410 A.D.

[12] In the example of 407 A.D. this expansion or dilatation is observable, but in a less degree than in those on coins.

if Dr. Bruce's representation of it be correct, as a Greek cross. Next, on the theory that it is a cross, we have no explanation of the adoption of the symbolical form of carving, such as is presented by the proposition to read IT = *iterum*, denoting the second consulship of the usurper Postumus. Again, of the objects found along the line of the wall to which dates can be assigned, some are of the 2nd century, many of the 3rd, very few of the 4th, and none of the 5th, if we except coins. The triangle, moreover, which has been regarded as one of the proofs of the Christian character of the stone, may more probably be explained as the representation of a pediment, the *tympanum* of which was commonly filled with sculptures. On the whole, I propose the solution—*Cohors Gallorum quarta*—as certain, and add to my previous remarks the suggestion that on the corner broken off (and, I fear, lost) there was, balancing the *quadra*, the representation of a *chors* (whence *cohors* is derived) *i.e.*, probably, of a poultry coop. The explanation that I have offered of the three objects at the vertical angle does not appear to me equally satisfactory, but I regard it as much better than any other of which I am aware, and as probably the true solution.

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[13] The necessity for the *gallus* being in the middle, where the height of the stone was greatest, and thus for the *chors* and *quadra* occupying the angles at the base, satisfactorily accounts for the order being *Cohors Gallorum quarta*, not *Cohors quarta Gallorum* as found in inscriptions.

ALEXANDER GORDON, THE ANTIQUARY.

BY DANIEL WILSON, LL.D.,

Professor of History and English Literature, University College, Toronto.

It is now close upon the completion of a full century and a half since there issued from the London press, in A.D. 1726, the *Itinerarium Septentrionale* of Alexander Gordon, familiar to all men as that prized folio which Jonathan Oldbuck undid from its brown-paper wrapper in the Hawes Fly, or Queensferry Diligence, on that memorable day when we are first privileged to make the acquaintance of The Antiquary *par excellence.* Over its pages many a devotee of archæology in that Augustan age, and since, following his example, has "plunged, nothing loath, into a sea of discussion concerning urns, vases, votive altars, Roman camps, and the rules of castrametation." It was, in truth, the *vade mecum* of all Roman antiquaries of that eighteenth century; and, though long since superseded and displaced, it embodies results of honest research which can never wholly lose their worth.

In his preface, Gordon tells us he "chiefly intended to illustrate the Roman actions in Scotland," and the work has as its central idea "Julius Agricola's march into Caledonia." In dealing with the Danes,--who, in the estimation of historians and antiquaries of that age, divided with the Romans the exclusive share in all historical remains,—he limits himself, in like manner, to "An account of the Danish invasions on Scotland, and of the monuments erected there on the different defeats of that people." He expressly designates his elaborate and learned folio as "this present essay on the antiquities of Scotland, my native country;" and purposes by its publication to relieve the Scottish nation from the charge of negligence "in collecting and publishing to the world their treasures of the Roman antiquities." As a publication, however, it issued from the English press. The title-page—which, after the fashion of eighteenth century folios, includes an elaborate summary of contents and a long Latin motto,—

closes with the information that it is sold by G. Strahan, at the Golden Ball in Cornhill, and by sundry other booksellers in the vicinity of Covent Garden, Temple Bar, and St. Paul's Church Yard, where still the publishing fraternity of London most do congregate. But the booksellers who vended such choice literary wares under the sign of the Golden Ball in Cornhill, or the Half Moon near Temple Bar, were the mere retailers of stray copies. The title-page sets forth that it is "printed for the author," and is immediately followed by what in our more democratic age would be regarded as an extravagant, if not altogether fulsome dedication, to Charles, Duke of Queensberry and Devon, illustrious in the antiquity of his line; bearing, as a Douglas, a name exalted in the annals of Europe; possessing by hereditary right the many shining qualities of his renowned forefathers, joined to a superlative nobility all his own; and so the dedicatory laudation proceeds in its extravagant hyperboles. The Duke's connection with the actual matter in hand appears to have been mainly traceable to the fact that the Roman works at Birrenswork, in Annandale, were situated on his Grace's estate, and the Duke had liberally aided his explorations there. It was not only an ancient stronghold of the Roman invader, but the actual citadel of the Scottish antiquary himself, in combating every opponent who ventured to differ from his theory as to the precise place where Agricola first entered Caledonia, and the route pursued by him in his great northern expedition. Here, to the eye of the enthusiastic explorer, were "clear evidences of Agricola's first incamping within the Caledonian territories," and "only six miles from where the Solway Firth is fordable, are to be seen the vestiges of the first Roman Camp of any to be met with in the south of Scotland, and the most entire and best preserved one that I ever saw." Here he recognises, as "yet to be seen by all, the four gates mentioned by Josephus, viz., The Prætoria, Decumana, Dextra, and Sinistra Gates. They are all plain and accessible, and sufficiently wide in case of a sally. The square ground where the Prætorium, or general's tent stood, is still remaining, as is also the ditch surrounding the camp;" with much else, all tending to "confirm the character of Agricola as given by Tacitus: Adnotabant periti, non alium ducem opportunitates locorum sapientius legisse," &c.

The locality is indeed one with abundant attractions for the archæologist. Both Roman camps and native earthworks abound. A beautiful

enamelled bronze bridlebit in the museum of the Scottish Antiquaries was found deep in the moss at the east end of Birrenswork Hill; and from the neighbouring moss of Middleby, only a few years subsequent to Gordon's visit to Annandale, a remarkable series of decorated rings, horse furniture, and other examples of native work in bronze, was recovered, and secured by his friend Sir John Clerk of Pennycuik, in whose collection they still are. The Roman entrenchments of Annandale are famous for their varied disclosures of inscribed altars and tablets, sculptures, statuary, and hypocausts; a ruined temple, with the name and dedication of its architect, AMANDUS, inscribed on the sculptured figure of the goddess Brigantia; a mutilated statue of Fortune, the fruit of a vow in gratitude for restored health, performed by a Prefect of one of Agricola's Tungrian cohorts; the sepulchral tablet, dedicated by a Roman mother to the shade of her daughter Pervica, a maiden who faded away under that bleak northern sky; with much else replete with interest to the antiquary and historical student.

No wonder then that Gordon, when penning a courtly dedication in the style of his age, gave full play to the most laudatory eulogies of the patron who had won his gratitude by facilities extended to him when ransacking the hoards of this old Roman treasury. But though he reverts in a similar style to the services of this and other titled patrons, he could discriminate between the true virtuoso and the gilded sham; and is by no means a blind idolator of rank and title. He contrasts the honoured patrons of learning and historical research with others, "and it is to be regretted, some of them of birth and fortune," who "give out that antiquity, and such like branches of learning, are but the chymeras of virtuosi, dry and unpleasant searches;" while they find in bear-gardens, gaming-tables, and midnight revellings things which fit their genius the best. But "such dissonant souls" he pronounces, in spite of all their wealth and honours, to be "only the dignified dregs of nature!"

The volume is illustrated with a map and sixty-six plates, engraved from the author's own drawings. These, as well as the prefatory notices, are turned to account as a means of honouring with special dedications others of his patrons, including Duncan Forbes of Culloden, Lord Advocate of Scotland, the Honourable Roger Gale, Sir Gilbert Elliot of Minto, Sir James Dalrymple of New Hales, Sir Hans Sloan, M.D., General Wade, and others whose names are still

worthy of remembrance; in addition to dukes, lords, bishops, and dignitaries of all sorts, who had in any way favoured his undertaking. But there is one whom he selects for special recognition from among his Scottish friends and patrons, as "not only a treasure of learning and good taste, but now one of its chief supports in that country." This was Sir John Clerk of Pennycuik, Baron of His Majesty's Exchequer in Scotland, and one of the most zealous Roman antiquaries of that age. From him Gordon derived hearty sympathy and substantial aid. He was a frequent guest at Old Pennycuik House, and was accompanied by the Baron in his Northumbrian explorations, as well as in others nearer home. When describing his visit to Housesteads,—the old Roman Borcovicus, pronounced by Gordon to be "unquestionably the most remarkable and magnificent Roman station in the whole island of Britain," and by Dr. Stukely denominated "the Tadmor of Britain,"—he says: "When I had the honour to traverse this ground for the first time, with Sir John Clerk, Baron of the Exchequer, we caused the place to be dug where we were then sitting amidst the ruinous streets of this famous oppidum, and found a small statue of a soldier, accoutred in the Roman habit." This, with an altar and other trophies, were carried home in triumph to enrich the Pennycuik museum, of which Gordon says: "Among all the collections of Roman antiquities in Scotland, that of Baron Clerk claims the preference, both as to number and curiosity;" and then he goes on to describe a Roman spear-head of old mixt brass, a hasta pura, fibulæ, &c., of the same metal, a Roman tuba, securis, "as also two cuneii or wedges of the like metal. But it is disputable whether these were Roman or not. However as they are curious in their kind, and of the old mixt brass, I have thought fit to exhibit a draught of one of them. The Baron has several sorts of hastæ or Roman spears, found in different parts of Scotland. He has likewise a pair of the best preserved crepidæ, or Roman shoes, that ever I saw. As for the medals and curiosities in his possession, natural or artificial, it would require a treatise to describe them separately."

Nor was the ruined site of Housesteads unworthy to call forth the intelligent enthusiasm of its explorers; for even now, when the altars and sculptured figures, which lay scattered everywhere in sight on Gordon's first visit, have long been removed, its latest explorer, Dr. Bruce, speaks of the ruins of the ancient city remaining "complete

and vast as ever;" and he adds that recent excavations "show us that when they are continued throughout the entire station, the ancient Borcovicus will be the Pompeii of Britain."

Such was the encouragement which stimulated Gordon to carry out his persevering researches, and embody the results in the famous Itinerarium Septentrionale. In this tall, thin, elaborately printed folio, emphasised throughout with italics and capitals of various type, the author records with loving minuteness his discoveries and observations relative to coins and medals, altars, inscribed tablets, and other memorials of the past, and his careful surveys and measurements of every station, camp, wall, fort, or military way ascribable to the Romans, in any part of Scotland or the neighbouring districts of Northumberland and Cumberland. The monuments now familiar as "The Sculptured Stones of Scotland," and assigned with little hesitation to native Christian art, but in Gordon's day unhesitatingly ascribed to the pagan Danes, also come under review, "with other curious remains of antiquity never before communicated to the public." He deals, indeed, with the whole subject of Scottish archæology, as it was then understood, and embraces in his antiquarian repertory everything, from the rudest stone axe or bronze celt, to the Ruthwell Cross and other choice specimens of native art; though after the fashion of his day subordinating all else to what was then deemed classic and Roman. In our own age of revived mediæval tastes, we may indeed feel thankful that it was not then possible to accomplish literally all that was implied in the author's wish that "antiquity and learning may flourish in the island, to the total extirpation of *Gothicism, ignorance, and bad taste.*"

Gordon subsequently supplemented his Itinerarium with an appendix, chiefly enriched by means of a learned correspondence concerning ancient sepulchral rites in Britain, carried on between his own special friend and patron, Sir John Clerk, and Roger Gale, a learned English antiquary, whose name is perpetuated, along with that of his brother Samuel, in the *Reliquiæ Galeanæ* of Nichol's *Bibliotheca Topographica Britannica.* They are pronounced by Gordon to be "two gentlemen who are the honour of their age and country."

The part which "Sandy Gordon" and his Itinerarium Septentrionale play, not only in one of the choicest of the Waverley Novels, but in its autobiographic picturings of the great novelist himself, has

helped to recall from a fast-obscuring oblivion the memory of the old Roman antiquary, though too late for any minute portraiture of the man. Dr. Robert Chambers refers to him, in his "Lives of Illustrious Scotsmen," as one of the numerous subjects of the biographer's pen "of whom nothing is known except their birth *in* Scotland, and their transactions in public life *out of it*;" and yet, as his Itinerarium shows, he did perform not a little very creditable and thorough work within the bounds of his native land before he finally joined the ranks of "the Scots abroad." Nevertheless, it is the fact of his later years having been passed in the New World which has stimulated me to some research, in the hope of recovering traces of an old Scottish antiquary and scholar in the times of American colonial life.

Alexander Gordon was an enthusiast after the true Oldbuck type. He must have been something of a genius, though of the arid and genuinely Dryasdust kindred. He was a man of good education, familiar with the Latin classics, and "possessing what was not in his time common among the Scottish literati, an intimate knowledge of the Greek language." He was no less familiar with the languages and literature of France and Italy; and, with a singular taste selected the Borgian Pope, and his gifted but not less infamous son, for the theme of one of his learned folios. He was a Master of Arts, but whether of Old King's College, or of Marischal College, Aberdeen, I have failed to ascertain. Among the subscribers who patronise his famous folio we might be tempted to recognise the favour extended to an alumnus of King's College, by the subscription of "The Principal of the University of Old Aberdeen" for two copies, while the head of the rival University of the New Town contents himself with one, but then it is "*One Royal.*" Another of his subscribers is "Thomas Blackwell, M.A., Greek Professor in the Marischal University of Aberdeen," possibly his old instructor in Hellenic literature; but "John Ker, M.A., Greek Professor to the University of Old Aberdeen," extends a like favour to the work; and the name of its author was no rare one in the northern city on the Dee.

He was, I presume, a native of Aberdeenshire, but no record has been recovered to tell of his family origin. Sundry Gordons figure among the subscribers to his folio, and two of the most distinguished of the name—The Honourable Sir William Gordon, of Invergordon,

and the Right Honourable Sir Thomas Gordon, Vice Admiral of Russia,—are each selected for the special honour of dedication of an engraved plate. But the Gordons of Aberdeenshire are too numerous a clan to admit, on such grounds, of the assumption of relationship between the author and those of his name who extended their patronage to the work. For a time, at least, he was a citizen of Aberdeen, and, as I was informed by the late Sir George Clerk of Pennycuik, professionally engaged as a teacher of music. He was indeed possessed of tastes and accomplishments of a varied range, including more than one of the fine arts, and was even reputed to be the composer of some favourite Scottish airs. He must have presented peculiar traits of character such as Scott would have delighted to study, for he appears to have exhibited characteristics and habitudes ordinarily reckoned incompatible. He led a roving life, changed his profession repeatedly, devoted himself with unbounded enthusiasm to one of the most unprofitable hobbies that can engross the energies of a student, sought fame and fortune in the Old World and the New in widely differing occupations and pursuits, and yet ended by giving the lie to the old proverb which says "A rolling stone gathers no moss;" for, as will be seen, he bequeathed to his son and daughter a substantial estate in his New World home, along with the more characteristic inheritance of certain broad acres in Utopia!

In 1720, Dr. William Stukeley—famous among the English antiquaries of that eighteenth century,—published his account of Arthur's Oon, a singular, if not wholly unique structure on the banks of the River Carron, near the town of Falkirk, in Stirlingshire; or rather, as Dr. Stukeley notes, "near Graham's Dike," or the Northern Roman Wall. In that treatise he expresses his wonder that, among the many good scholars of the Scottish nation, no one had been found to collect and publish to the world the actual treasures of Roman antiquity abounding in their midst, instead of continuing to compile their ancient history "from invention and uncertain reports." This, Gordon tells us in his preface, "was sufficient excitement for me to proceed still more vigorously in collecting what I had begun;" and so, he was able to say, when his work was finished, "I confess I have not spared any pains in tracing the footsteps of the Romans, and in drawing and measuring all the figures in the following sheets from the originals; having made a pretty laborious progress through

almost every part of Scotland for three years successively. Indeed," he says, "I must acknowledge that I might have been able to have added many other valuable materials for the perfecting of this work had I had any encouragement from the public, seeing my own circumstances were not sufficient to have gone to the expense of searching and digging in places where I am most certainly convinced many other curious and noble monuments of the Romans may yet be found."

It was due to the author of a work devoted to the antiquities and traditions of Scotland, that the reviver of its old minstrel tales and lays should hold him in loving regard; for his researches were carried out among the same dales and glens where Scott himself ere long made his own itinerary, with results memorable to all men, in his Minstrelsy of the Scottish Border, and in the romances wrought by him as the fruits of such study of Scottish legend and character. In the pages of his Itinerarium, Gordon not only describes and delineates the altars and inscribed tablets, the Roman legends, and runic inscriptions of Inveresk and Cramond, of Ruthwell, Annandale, and the Eildon Hills—all favourite haunts of the great novelist,—but he furnishes no inconsiderable part of the actual materials which Scott turned to account in the creation of one of his most original characters: the Laird of Monkbarns.

According to the traditions of the Pennycuik family, as communicated to me by the late Sir George Clerk, the author of the Itinerarium was a grave man, of formal habits, tall, lean, and usually taciturn. But his silence was probably only in uncongenial society. He must have had his voluble fits at times, for he was known in the Pennycuik circle by the name of *Galgachus*. His thoughts at this time, we may presume, revolved so persistently around Mons Grampius and its Caledonian hero, that when they shaped themselves into words, they were apt to make the enthusiastic antiquary the butt of unsympathising juveniles. Of the pranks of the latter under such promptings some characteristic reminiscences are preserved; and especially that of the manufacture of a Roman altar, which was in due time brought to light on the Pennycuik estate, and furnished the basis for speculations not less learned and ingenious than those of the ever-memorable sculptured tablet, with its sacrificial ladle and inscription, dug up by The Antiquary on his third day's trenching of the Kaim of Kinprunes. In truth, the whole story is a genuine

legend of the Pennycuik family, derived by Scott himself from William Clerk, of Eldin, the grandson of the Baron. On one occasion, as he told, when visiting his grandfather at Dumcrieff, in Dumfriesshire, the old Baronet carried some virtuosos to see a supposed Roman camp, and on his exclaiming at a particular spot, "This I take to have been the Prætorium," a herdsman who stood by responded: "Prætorium here, prætorium there; I made it wi' a flaughter spade." A brother of his informant, afterwards famous on the Scottish Bench as Lord Eldin, inherited another trait of the scions of the Pennycuik House. Being skilled as an artist, he employed his ingenuity in the manufacture of antique statues, which, mutilated into a becoming aspect of genuineness, were in due time dug up, to the great delight of the laird and the enrichment of his museum.

The curious collection of Roman and other antiquities which engaged the study of the older Scottish antiquary, and which Gordon enriched with various contributions, including a fine votive altar found at Barhill, on the Antonine Wall, a legionary tablet from the Croehill Fort, and other gifts of like kind: is still preserved at Pennycuik House, as in the days when the author of the Itinerary was welcomed there by the Baron, to whose taste its formation is chiefly due. It was, indeed, when prosecuting my own researches among its antique treasures, that the family traditions above referred to, relative to the author of the Itinerarium Septentrionale, were communicated to me by the late Baronet. But the old mansion itself, which furnished the arena for discussions akin to those which wrought such strife between the houses of Knockwinnock and Monkbarns, has long since disappeared. The present house, built by the Baron's son and successor in 1761, in the classic style which Robert Adam was then bringing into general favour, is chiefly interesting for its great room, styled *Ossian's Hall*, elaborately decorated by the pencil of Runciman with frescoes illustative of the popular Gaelic epic. Its builder extended to the poet Allan Ramsay a like hospitable welcome with that which Gordon had received from his predecessor; and the romantic locality of Habbie's How, the scene of the poet's Scottish pastoral, lies only a few miles to the south-west, among the Pentland Hills.

There is no room for doubt that Scott had Gordon and his experiences in view, and even bore in remembrance certain familiar inci-

dents connected with the formation and later history of the Pennycuik collection, when he drew the inimitable portraiture of Jonathan Oldbuck. He does indeed tell us, in the introduction to "The Chronicles of the Canongate," that "the character of Jonathan Oldbuck, in 'The Antiquary,' was partly founded on that of an old friend of my youth, to whom I am indebted for introducing me to Shakespeare, and other invaluable favours." But he adds at a later date that the only incident in the novel borrowed from the real circumstances of his early friend, excepting the fact that he resided in an old house near a flourishing seaport, is a scene which Scott himself chanced to witness, in which he played the part of the Laird in his conflict with Mrs. Macleuchar, at the head of her trap stairs in the old High Street of Edinburgh. Of his other recorded qualities—including "an excellent temper, with a slight degree of subacid humour; learning, wit, and drollery, the more poignant that they were a little marked by the peculiarities of an old bachelor,"—the Pennycuik traditions have preserved nothing in common; nor is it easy to conceive of the patient, plodding author of the Itinerarium ever unbending so far as to be found capable of wit or drollery.

But the power of idealization was too strong in Scott to admit of his being the mere literary photographer of some familiar acquaintance. Many traits of his old friend George Constable, of Wallace Crag, were doubtless wrought into the ideal Jonathan Oldbuck; but we have the authority of Lockhart for the fact that John Clerk, of Eldin, a younger son of the Baron of Pennycuik,—author of a once famous essay on dividing the line in sea-fights, to which was ascribed some of the victories of Lord Rodney and a general revolution in naval tactics;—who inherited the antiquarian tastes of his father, supplied not a few of the most graphic touches in the inimitable portraiture of the Laird of Monkbarns. Nor was the author wholly unconscious of personal traits of the Laird of Abbotsford himself, derived in part from the enthusiasm of friends of his youth, and fostered by such studies as those of "Sandy Gordon's Itinerarium Septentrionale." But Scott's characters are creations, and not mere portraits, much less caricatures. They are true to nature, and replete with evidence of that comprehensive study of humanity in which the power of the poet and the dramatist lies.

But of the influence of the Itinerarium Septentrionale on the literary form of "The Antiquary," and the enriching of its pages

with incident and character derived from this unlikely source, there can be no question. It is indeed very much in the actual words of Gordon's learned argument, though in a more condensed form than suited the ample page of his folio, that the Antiquary holds forth to Lovel on the disputed site of Agricola's victory. "As for our Scottish antiquaries," says Gordon, "they are so divided that some will have it to be in the shire of Angus, or in the Mearns; some at the Blair of Athol in Perthshire, or Ardoch in Strathallan; and others at Innerpeffery:" and so the solemn old folio, formal, tall and lean as its learned author, proceeds as it were in stately amplification of the very words listened to by Lovel on the Kaim of Kinprunes. And "now, after all this discussion," continued the Laird of Monkbarns, with one of his slyest and most complacent looks, "what would you think, Mr. Lovel—I say, what would you think, if the memorable scene of conflict should happen to be on the very spot called the Kaim of Kinprunes?"—or, as his genuine prototype, Sandy Gordon, would have it, at Galdachan, in Strathern. He has combated his opponents in detail, and now he proceeds: "From all which I am of opinion that the real place where the battle was fought, at the Mons Grampius, is, as I have already asserted, in Strathern, the famous *Glacialis Ierne* of which Claudius the poet afterwards makes so much mention." For is there not Agricola's camp visible there to all men, with distinct agger and fossa, porta decumana, prætorium, and all else? 'Tis true, a part of the square is washed away by the Ruchel, a torrent that there joins the river Ern. But what of that, when the identification can be clinched in this unanswerable fashion: "The situation of the ground," says Gordon, "is so very exact with the description given by Tacitus, that in all my travels through Britain I never beheld anything with more pleasure, it being directly at the foot of the Grampian Hills; besides there are the *colles*, or small rising grounds on which the Caledonians were placed before the battle, and also the high hill on which the body of the Caledonian army lay, and from which they came down upon the Romans. Nor is it difficult, on viewing this ground, to guess at the place where the *covinarii*, or charioteers, stood. In fine, to an antiquary, this is a ravishing scene." And so he closes his argument beyond possible assault, with this crowning evidence: "Galgachus's name still remains on this ground; for the moor is called to this day *Galdachan*, or *Galgachan Rossmore!*"

There is no question where Scott obtained the materials which he turned to such choice account. It would be vain, indeed, to hunt in the grave pages of the *Itinerarium* for Edie Ochiltree's prototype. Yet it is in immediate sequence to a learned discussion about King Gald, or Galdus, and the transformation of his name into that of the Scottish hero, that he tells us: "they have a tradition that from the Fort of Ardoch to a place on the opposite side of the water, called the Keir, there is a subterranean passage in which there are old treasures hid. This tradition, which perhaps is very groundless, is kept up by two or three of the bardish verses which are handed from father to son, time out of mind:—

From the camp of Ardoch
To the grinnin hill of Keir,
Are nine kings' rents
For seven hundred year.

I was much diverted," adds Gordon, "with some old astrological stuff which one of the inhabitants had from his great grandfather, directing his posterity, by certain obscure cyphers, to find out the treasure. I should not have mentioned the tradition had I not called to mind the story of King Arthur's body, which was discovered by some old verses of the bards; and if there be any treasure, I believe it may be Roman medals, or such kind of antiquities." After all the diversion which our antiquary professes to have derived from the credulity of the rustics of Strathallan, it is obvious that he could have been as easily lured by some mischief-loving Edie Ochiltree to try the powers of his "old astrological stuff," as the German adept in his search for the treasures of Misticot's grave. If he could only, with the help of magic formulæ or diviner's rod, have hit upon the spot, there is no questioning his readiness to have dug up the "nine kings' rents" in medals and other Roman ware, as genuine as the bonnet-pieces and testoons dug up in the ruins of St. Ruth. "Eh, sirs," exclaims the old Bluegown, "but human nature's a wilful and wilyard thing! Is it not an unco lucre o' gain wad bring this Dousterdivel out in a blast o' wind like this, at twal o'clock at night, to thir wild gousty wa's?—and amna I a bigger fule than himsel' to bide here waiting for him?"

But Mr. Alexander Gordon was no knavish adept. He merits all the praise of an honest and painstaking antiquary, who diligently travelled and studied for himself; and has preserved for us records

of earthworks, inscriptions, and relics of various kinds, of which, but for him, all knowledge would have been lost. The title of his famous folio is "Itinerarium Septentrionale, or a journey thro' most of the Counties of Scotland, and those of the North of England;" not indeed that that is the whole title, for it runs on into details sufficient for a respectable preface, and guarantees "a particular description of the Roman walls of Cumberland, Northumberland, and Scotland; their different stations, watch-towers, turrets, exploratory castles, height, breadth, and all their other dimensions; taken by an actual geometrical survey from sea to sea, with all the altars and inscriptions," &c., &c. As to Mons Grampius, he has surveyed it for himself, and floors his opponents by reminding them that the remarkable range of mountains called the Grampian Hills reaches from Dumbarton on the Clyde, to Aberdeen on the German Ocean; and though, no doubt, the Mons Grampius they are in search of must be one of this long range of Montes Grampii, yet he says: "Till I see some vestiges of a Roman camp in the Mearns, where there are none, I cannot be convinced that Agricola went so far north."

It was worth Sir John Clerk's while to give hospitable entertainment at Pennycuik House to one who could speak as an eye-witness of every camp, tower, and barrow of the whole Grampian chain. The Baron's father-in-law was Sir John Inglis, of Cramond, famous for its Roman harbour, of which Gordon says: "Here several Roman inscriptions have been dug up, and an incredible quantity of Roman coins of gold, silver, and brass of all sorts," besides altars, &c., which he describes from the originals "now in Baron Clerk's collection;" and he adds, "among all the collections of Roman antiquities in Scotland, that of Baron Clerk justly claims the preference, both as to number and curiosity;" but above all, a Roman stilus for writing, found, with its *theca graphiaria*, within an old Roman sepulchre, or cairn, in the County of Edinburgh, and "esteemed by all the curious as the greatest rarity of that kind ever found in Britain." The Baron's own learned report of his explorations is embodied in Gordon's supplement, wherein he notes the discovery in this same sepulchre of a "perpetual lamp," such as are affirmed to have been found still burning on the opening of certain tombs, and, in defiance of all known laws of combustion, to have only gone out when a supply of oxygen was admitted to them!

Pennycuik House stands on the skirts of the Pentlands, where the North Esk winds its way eastward to the Roman station of Inveresk; and is surrounded on all hands with antique sites and historical localities, rich in treasured memories, and in not a few tangible memorials of the past. The old Baron's library of learned folios and quartos still survives; and the valuable collection of Roman and other antiquities which rewarded his explorations in the surrounding regions, or was augmented by his father-in-law, Sir John Inglis, from the old Roman seaport at the mouth of the Almond, by Gordon himself, and by other contributors, furnished some curious illustrations for the "Prehistoric Annals of Scotland:" including specimens of primitive bronze work, and a rare example of ivory-carving, — a group of figures, of which the central one, a queen, seated with a book and lap-dog on her knee, suggests its destination as the queen-piece of a set of chess-men,— wrought, like others of its class, from the tusk of the walrus, or "huel-bone" of Chaucer. It is labelled, in the handwriting of the Baron, as having been found by John Adair, the old Scottish geographer, in 1682, when engaged in a survey of the kingdom by appointment of the Lords of the Scottish Privy Council. It must, therefore, have been in the Pennycuik collection when Gordon was ransacking it for his Itinerary; but it lay out of the line of his favourite studies, or of objects that then commanded the interest of the learned.

Only a few miles distant from Pennycuik House, in the vicinity of the old Roman track, lies the village of Romana, the name of which is supposed to perpetuate the memory of the constructors of certain Roman works near by, and so, as Gordon says, "to prove the veracity of its etymology." The stables of Pennycuik House are now surmounted with a dome-like structure, formerly erected in the neighbouring grounds as a fac-simile of the Arthur's Oon of Dr. Stukeley's old quarto: a singular bee-hive structure of squared masonry twenty-five feet in diameter, which, in spite of every conflicting analogy or probability, Gordon agrees with the elder author in believing to have been a Roman temple erected by Agricola. As to what Dr. Stukeley did or did not believe, we need not greatly concern ourselves. He visited Oxford in September, 1724, little more than a year prior to the issue of Gordon's famous folio from the press, and when he must have been in frequent correspondence

with his antiquarian friend on many knotty points of interpretation and deduction. A learned scholar and antiquary then resident there as Fellow of his College, Thomas Hearne,—himself one of the most voluminous of writers, whose works, in all their editions, extend to about one hundred volumes,—has recorded the fact in his diary, with this comment on his brother antiquary: "This Dr. Stukeley is a mighty conceited man, and it is observed by all I have talked with that what he does hath no manner of likeness to the originals. He goes all by fancy. In short, as he addicts himself to fancy altogether, what he does must have no regard among judicious and truly ingenuous men." A more recent biographer, in the "Penny Cyclopædia," sums up his character in this fashion: "No antiquarian ever had so lively, not to say licentious, a fancy as Stukeley. The idea of the obscure, remote past, inflamed him like a passion. Most even of his descriptions are rather visions than sober relations of what would be perceived by an ordinary eye; and never, before or since, were such broad continuous webs of speculation woven out of little more than moonshine." Such was the author of the "Account of a Roman Temple, Arthur's Oon," in the estimation of critical and discriminating judges. But the old proverb holds good, that "a man is known by his friends;" and the estimate of Gordon stands in amusing contrast to such inappreciative verdicts. After pronouncing that "Dr. Gale's and Burton's Itineraries will be famous whilst letters are in the world;" he adds, "nor, I hope, will the labours and industry of my worthy friend Doctor Stukeley be ever forgot, who has favoured the public with so many notable discoveries in antiquity and other branches of valuable erudition."

As to Arthur's Oon, the first notice of it occurs in the Historia Britonum of Nennius. In form it coincided with the bee-hive houses of Scotland's and Ireland's primitive Christian era, and its masonry was not greatly different from that of the Scottish round towers, popularly ascribed to the Picts. Whether it was a sacellum or a mausoleum, a templum termini, or what else, no two antiquaries were agreed. But in this, at least, the pair of enthusiasts concurred, that it was "not unlike the famous Pantheon at Rome, before the noble portico was added to it by Marcus Aurelius:" only Gordon must needs note that the Pantheon is of mere brick, "whereas Arthur's Oon is made of regular courses of hewn stone." This unhappily proved its ruin. In 1743, Sir Michael Bruce, the barbarian on whose lands it stood,

pulled it down for materials wherewith to build a mill-dam on the River Carron. The river whose banks it had made memorable from the days of Nennius, if not of Agricola, avenged the sacrilege by sweeping away the dismembered sacellum; and so Sir John Clerk, after "cursing the Gothic Knight with bell, book and candle," did the best he could to reproduce the lost relic on the banks of the North Esk. A noteworthy little incident, highly illustrative of Scottish character, is mentioned by Dr. John Hill Burton, who himself remembers it being brought as a charge against a candidate for the representation of a Scottish county, certainly more than a century after the base deed was perpetrated, that he was a descendant of the destroyer of Arthur's Oon!

There was much to be pondered over by the Laird of Pennycuik and his industrious brother antiquary. There had been a basso-relievo visible on the time-worn archway of Arthur's Oon, as like to an eagle with expanded wings as was that over Monkbarns' own doorway to the Abbot of Trotcosey's mitre; only, as Gordon feels bound to confess, "age and time, and perhaps the same barbarous hand that erased the letters, may have defaced it, but even now part of the body and one of the wings may be faintly discerned." Here again was subject matter for many a solemn conclave. Gordon sums up a grand array of exhaustive arguments thus: "But besides all this, Dr. Stukeley has well observed that time has left Julius Agricola's very name on the place, as entire as the building, seeing it goes frequently under the appellation of Julius Hoff, or house; and if ever these initial letters I. A. M. P. M. P. T., mentioned by Sir Robert Sibbald, were engraved on a stone in this building, it may not be reckoned altogether absurd that they should bear this reading,—*Julius Agricola magnæ pietatis monumentum posuit templum.* But this the reader may either accept or reject, as he pleases. However, I think it may as probably be received as that inscription on Caligula's Pharus in Holland, which, having these following letters, C. C. P. F., is read *Caius Caligula pharum fecit.*" Here, it can scarcely be necessary to remind the reader, is the undoubted original of Aiken Drum's lang ladle. The Antiquary has demonstrated to Lovel beyond all possibility of cavil that the Kaim of Kinprunes, the *Castra pruinis* of Claudian—*in conspectu classis*, in sight of the Roman fleet, as Tacitus has it,—corresponds in all respects to the scene of Agricola's final conflict; and now is produced the grand

climax, held in reserve for a crowning triumph: the sculptured stone trenched up on the very spot, with its "sacrificing vessel, and the letters A. D. L. L., which may stand without much violence for *Agricola dicavit libens lubens.*" "Certainly, sir," responds the complaisant Lovel, "for the Dutch antiquaries claim Caligula as the founder of a lighthouse on the sole authority of the letters C. C. P. F.;" and so on to Mr. Oldbuck's "trivial essay upon castrametation, with some particular remarks upon the vestiges of ancient fortifications lately discovered by the author at the Kaim of Kinprunes," in which he flatters himself he has pointed out the infallible touchstone of supposed antiquity. It is interesting thus to trace the hand of the great master, with his Midas-touch transmuting such arid controversies into the sparkling humour of his choicest romance.

Gordon was able to contribute to the Pennycuik discussions somewhat besides the learning which he had picked up in his northern Alma Mater. Like Dugald Dalgetty, he was a traveller to boot though on more peaceful errands. What his precise age was at the date of the publication of the famous folio on which his literary fame is based, I have failed to ascertain. In point of years he was greatly Baron Clerk's junior. But his journeyings had already extended beyond the shadows of the Grampians, and with the publication of the Itinerarium his connection with Scotland came to an end. His correspondence with his "worthy friend, Dr. Stukeley," had now been exchanged for more intimate personal intercourse, and he grows enraptured over the assembled rank and learning of the old London gatherings of the antiquarian fraternity, of which the Doctor was Secretary. The London Society of Antiquaries had at that date forsaken the Young Devil Tavern in Fleet Street, for the Fountain Tavern over against Chancery Lane, and in the following year removed to Gray's Inn Lane, and afterwards to the Temple. But apparently the more dignified quarters thus provided for their deliberations conflicted too much with the social habits of that age; and so, in the following year, 1728, we find the Fellows have once more emerged into Fleet Street, and are holding their meetings in the Mitre Tavern there. It was, in truth, the Antiquaries' Club according to the fashion of that eighteenth century; and to the genuine enthusiasts who took the lead in it, was so delightful that Gordon exclaims, "For my own share, I think sincerely that England seems now to be the true seat of the Muses, and London is become Apollo's

favourite residence." In his dedication to the Duke of Queensberry he expresses his gratitude "for many favours received both at home and abroad;" and his repeated allusions to the architecture of Rome and to the galleries of art of Naples, Venice, Florence, and other celebrated collections of continental Europe, as well as to the Raphaels, Titians, Domenichinos, and Vandykes in English collections, prove his familiarity with the works of the great masters as objects of personal study. He was indeed a zealous collector himself, alike as an antiquary and a connoisseur of art. He claims for "the Mercury now in London, which I myself had the good fortnne to buy for the present Lord Bateman in Italy," an artistic value equal to any statue in Europe; while we come repeatedly on such references as this: "I carried away from the Fort of Carvoran a small portable altar, with an inscription dedicated to the tutelary god Vitorinus. This piece of antiquity I gave to Baron Clerk, and take it to be the same mentioned by Cambden." Again, at Castlestead, the Petriana of later Anglo-Roman antiquaries, in Northumberland: "here I purchased a small altar dedicated to the god Mars. The inscription is thus: DEO SANCTO MARTI VENVSTINVS LVPVS VOTVM SOLVIT LVBENS MERITO. This small altar, which I presented to the Right Honourable the Earl of Hertford, is very singular in giving the epithet *Sanctus* to the god Mars. Cambden shews an altar with an inscription, Deo sancto Belutucadro, which is supposed to be Mars; but this confirms the title *Sanctus* to that god of war, and is a very great curiosity." Had his researches been turned to a collateral branch of inquiry, well calculated to have engaged his attention, he would have learned from a study of the famous Eugubine Tables, found at the Umbrian town of Iguvium in 1444, that *Sancus* was the tutelary deity of the Sabines, and *Sabus*, the son of *Sancus*, their chief divinity and eponymous, with much else peculiarly tempting to so indefatigable an etymologist as Gordon proves himself to have been. For it was a study he "loved, not wisely, but too well."

But the prized altar of the Petrianian Mars has beguiled us from the remoter wanderings of the author of the Itinerary. This much is certainly known of him, that in early life he travelled over various parts of the Continent, explored considerable portions of France on foot, visited Germany, resided for years in Italy, and so—along with other fruits of such experience,—was able to confute Hector Boethius and later speculators on the purpose for which

Arthur's Oon was constructed. Winding up a comprehensive argument in his Itinerarium, he adds this final result of his own observations: "Indeed, for my own part, I never observed, in Italy or elsewhere, any real Roman temple whatsoever which was not at least four times as large as Arthur's Oon."

But, as already hinted, the antiquarian traveller had tastes and acquirements of a varied range, and in some respects of a more marketable character. He was able to state, in closing his Itinerary, that "all the monuments in this work are truly and faithfully exhibited from the originals, drawn on the spot by my own hand;" and as he refers to the inadequate encouragement extended to him having compelled him to curtail the expenditure on engraving, it is only just to assume that he had a greater command of his pencil than the coarsely executed plates of his folio would suggest. In reality, as now appears, he worked in oil, practised the art of portrait painting, and, as will be seen, made some of his paintings, including his own portrait, subjects of special bequest in his will.

In music his skill was considerable, nor is it wholly improbable that we may owe to him one or other of the unclaimed airs associated with Scottish song. Aberdeenshire has contributed its full share both to the lyrics and music of our national minstrelsy. The Rev. John Skinner, one of its own native poets, in his vigorous words to the old reel of Tullochgorum, appeals to the national sympathies against new-fangled foreign tastes:—

> What need there be sae great a fraise
> Wi' dringing dul Italian lays,
> I wadna gie our ain strathspeys
> For half a hunder score o' them

William Marshall, butler to the Duke of Gordon, composed and adapted some of the fine airs to which Burns wedded more than one of his most beautiful songs, such as "Of a' the airts the wind can blaw;" and we owe to the M.S. lute-book of Sir Robert Gordon of Straloch, dated 1627, several fine song tunes of an earlier century. It would be a pleasant discovery if we were enabled to associate a familiar national or Jacobite air with the name of the old Scottish antiquary. According to the traditions of Pennycuik House, his musical skill had been turned to account in his continental wanderings, somewhat after the fashion of Goldsmith's flute, though doubtless in more dignified professional ways than those which the author of "The Traveller" thus artlessly records:—

How often have I led thy sportive choir,
With tuneless pipe beside the murmuring Loire!
Where shading elms along the margin grew,
And freshen'd from the wave the zephyr flew;
And haply, tho' my harsh touch, falt'ring still,
But mock'd all tune and marr'd the dancer's skill,
Yet would the village praise my wondrous power,
And dance, forgetful of the noontide hour,
Alike all ages. Dames of ancient days
Have led their children thro' the mirthful maze;
And the gay grandsire, skill'd in gestic lore,
Has frisk'd beneath the burden of three-score.

Without the geniality of the author of "The Traveller," Gordon must have had some of his wayward propensities. Chalmers says that he "resided many years in Italy, and visited most parts of that country." Of this Italian sojourn—in whatever capacity it may have been carried out,—the known fruits are his lives of Pope Alexander VI. and Cæsar Borgia, and his "Complete History of Ancient Amphitheatres, more particularly regarding the architecture of these buildings, and in particular that of Verona," translated from the Italian of the Marquis Scipio Maffei. But both his literary and professional labours must have been pursued in a singularly erratic fashion. He seems to have forsaken the Muses for a time after his return from his continental wanderings, and is reported to have acquired much of his minute knowledge of Romano-Scotic antiquities while engaged as a surveyor of the route for the projected canal between the Forth and the Clyde, which follows the same course as the line of Agricola's forts and the later wall of Antonine.

In 1732 Gordon issued proposals for engraving, by subscription, a complete view of the Roman Walls in Britain, as they really appear on the ground; their height, thickness, number of courses in the stone wall, inscriptions, altars, and all else; "their whole number again delineated from their originals, according to exact mensuration, with a scale, and correction of former publications." Had he received adequate encouragement, he would doubtless have anticipated Horsley, Hodgson, Stuart, and Bruce, in many of their industrious researches. But he had already remarked of the illustrations of his *Itinerarium*: "Had my encouragement from the public been more considerable, they might have been executed with more expense, though not with greater truth and exactness." Horsley's *Britannia Romana* was, moreover, ready for the press; the Scottish antiquary

had laboured on a thankless task, and the fruits of his painstaking researches were lost to the world.

> "How profitless the relics that we cull,
> Troubling the last holds of ambitious Rome;" -

so might the disappointed author have exclaimed, even in a more literal sense than the poet meant. This disappointment may have influenced the incidents of his later career, though he still found some recognition of his services in the cause of letters and archæology. In 1736 he was appointed Secretary of the Society for the Encouragement of Learning, and soon after succeeded to the more congenial office of Secretary of the Society of Antiquaries of London. It was probably through the influence of his brother antiquary, Dr. Stukeley, that he also obtained the secretaryship of the Egyptian Society, of which that amiable enthusiast was one of the founders; and so had a new bent given to his researches, which is proved by his will to have been thenceforth the ruling passion of his life. The Society was chiefly composed of gentlemen who had visited Egypt, and were thereby assumed to have achieved some special mastery of its antique lore. Their Secretary, without apparently having enjoyed such opportunities, turned his indefatigable zeal in this new direction, published a succession of very learned and unreadable folios, undertook to solve the mysteries of hieroglyphics before the Rosetta Stone was heard of, and to illustrate "all the Egyptian mummies in England!" Hence followed, in especial, "Two Essays towards explaining the hieroglyphical figures on the coffin belonging to Captain W. Lethieullier, and on the Egyptian mummy in the museum of Dr. Mead;" another folio of twenty-five plates of Egyptian mummies, engraved by Vander Gucht; and, indeed, endless hieroglyphic elucidations and mystifications, carried on to the close of a life terminated under circumstances well calculated to have weaned anyone but such an enthusiastic devotee from this unprofitable toil

> Of dropping buckets into empty wells,
> And growing old in drawing nothing up.

Alexander Gordon, it may be surmised, was somewhat of a fossil mummy himself. Had his northern Alma Mater been able to furnish it, his fittest niche would have been some snug College Fellowship, with a Bodleian Library to browse in at his will. But it has rather been the fashion in the North to let such Fellows cultivate their learning on a little oatmeal. I confess to a kindly feeling

for the old antiquary. His fate, though no rare one in the history of the Scot, was scarcely what he deserved. He must have had one more point of resemblance to Jonathan Oldbuck, characteristic enough of many a pilgrim from Dee-side. "Were he thoughtless, or light-headed, or *rei suæ prodigus*," said the old attorney who had undertaken to become Jonathan's instructor in the profession of the law, "I would know what to make of him. But he never pays away a shilling without looking anxiously after the change, makes his sixpence go farther than another lad's half-crown, and will ponder over an old black-letter copy of an Act of Parliament for days, rather than go to the golf, or the change-house." The author of the Itinerarium was of the same frugal type; and having no paternal acres on which to retire, after labouring so zealously to elucidate the antiquities of the Old World, he undertook an ampler Itinerarium Septentrionale beyond the furthest limit marked by column or temple of the god Terminus. It was his fortune to close his diligent life among the novelties of a world beyond the Atlantic, whither the Roman eagle never flew.

In 1741 Gordon was succeeded in the office of Secretary to the Society of Antiquaries of London by Mr. Joseph Ames, best known by his labours on typographical antiquities. He had married, and no doubt found the rewards of archæological learning and research somewhat insubstantial resources on which to sustain his household gods. So he accepted an invitation to accompany Governor Glen to South Carolina, where he obtained an official appointment, acquired a valuable grant of land, and died apparently in the year 1754, leaving to his family gifts of fortune far beyond what could have been hoped for from the career of the antiquarian enthusiast. It is just possible that this colonial appointment bore some slight relation to his earlier researches. At least the fact is noticeable that, among the Roman relics recovered by him while exploring the Antonine wall, at Barhill Fort, near Auchinday, was a Roman altar sculptured with patera and præfericulum, which, he says, "is now in the hands of my curious and honoured friend, James Glen, Esq., present Provost of Lithgow." This is no doubt the James Glen of Longcroft, Esq., who appears as a subscriber for two royal copies of the Itinerarium, and not improbably a relative of His Excellency James Glen, Governor of South Carolina, the patron at whose invitation Gordon emigrated to his later home in the New World.

Unfortunately my enquiries after traces of the old Scottish antiquary in his new home beyond the Atlantic were delayed till after the close of the great Southern War, which has led to the destruction of records that might have thrown further light on his own career and on that of his descendants. Nevertheless, research has been rewarded far beyond my expectations, mainly through the kind and zealous co-operation of General Wilmot G. de Saussure, of Charleston, South Carolina, President of the St. Andrew's Society of that city, and one who prizes his claims to Scottish descent through a maternal ancestress. Alexander Gordon became a member of that Society shortly after his settlement in Charleston, as appears from its historical roll; but unhappily the original records, which should have told of the part he played in its proceedings, perished in the late war. In its original constitution the Society is styled the St. Andrew's Club, and as such flourished till the War of Independence. In an address delivered before the Society by Mitchell King, Esq., when celebrating its centennial anniversary, on St. Andrew's Day, the 30th of November, 1829, the speaker remarks: "In examining the earlier records of the Society, it is interesting, and sometimes curious, to read the petitions, and see the various applications made to them. If a poor man had been oppressed by a rich neighbour, if he had lost his little crop, or stood in need of necessaries for his family, he applied to the St. Andrew's Society. One tells that his neighbours have trespassed on his land, and that he has been harassed and ruined by lawsuits. Another says that after he had made a good crop a part of it was destroyed by the bears, and the rest stolen by negroes. In 1747, the sister of a Scottish Baronet, on her third application for further relief, informs them that she believes the recent troubles in Scotland (*i.e.* the rebellion of 1745,) had prevented her brother from sending her assistance:" and so the narrative proceeds. But for the ravages of more recent troubles, we might have recovered some graphic touches illustrative of the share which Alexander Gordon took in the good work of the St. Andrew's Club of Charleston, the oldest charitable society of South Carolina. From the imprint of the original rules of the club—"London: printed by James Crokatt, printer and bookseller to the Society, at the Golden Key, next the Inner Temple Gate, in Fleet Street, 1731,"—it seems doubtful if a printing press had been set up in South Carolina within ten years of the arrival in that scene of his latest achievements, of

the author of the Itinerarium and other learned folios and quartos. When the address which supplies those facts was delivered, in 1829, a younger Alexander Gordon, possibly enough a grandson of the antiquary, was secretary of the Society. In the centenary address due attention is given to the memory of notable members; Alexander Skene, an original Member of the Council of the Province; John Fraser, a favourite trader among the Yamassee Indians, and celebrated in the early history of the state for his romantic escape, with his family, from a massacre, in the Indian War of 1715; Mr. Crokatt, first Treasurer of the Society, a wealthy Charleston merchant, and the link, as we may presume, between the old Charleston Club and his namesake of the Golden Key, who styles himself *Bibliopola ad Societatem.* The Londoner was a bibliopole of note in his day; originated the Universal History, and had a hand in starting the Daily Advertiser. His Excellency, Governor Robert Johnson; Robert Wright, Chief Justice of South Carolina; The Honourable James Abercrombie, of the House of Tullibody, second President of the Society; the Rev. Dr. Alexander Hewat, the earliest historian of the state; and others of the South Carolinian brethren of St. Andrew, in like manner come under review; but so wholly had the literary or antiquarian fame of the author of the Itinerarium proved an exotic in his New World home, that my fresh inquiries after any surviving traces of him in South Carolina were responded to by the acknowledgment that such a name did indeed appear on the old rolls of the Society, but nothing was known of the man. No one dreamt of its being that of the ever-memorable Sandie Gordon of Jonathan Oldbuck; and so I received, in lieu of what I craved, a minute record of another Aberdonian colonist, Dr. Alexander Garden, F.R.S., a zealous student of botany and natural history, and subsequently Vice-President of the Royal Society of London, who in 1755 accompanied Governor Glen on a journey into the country of the Cherokee Nation. As to the actual subject of my inquiries, my informant added that, after diligent search, his labours resulted only in the two following facts:—"That about 1750 one Alexander Gordon became a member of the St. Andrew's Society; and that about 1755 one Alexander Gordon's will was proved before the proper Probate Court; but the records being destroyed by Gen. Sherman when he burnt Columbia, the will could not be found."

Here seemed a hopeless termination to my too tardy inquiries after the old colonist. Early in November, 1864, General Sherman telegraphed to Washington: "Georgia and South Carolina are at my mercy, and I shall strike." On the 15th of the same month he gave Atlanta to the flames, and set out on the great march in which he swept, like a destroying angel, through the South. Columbia, the capital of the latter state, experienced the same fate as Atlanta; and among the many treasures that perished I could no longer doubt that, with all its other records of varying worth and value, the will of Alexander Gordon, with the evidence it contained of family ties and fortune's favours, had for ever passed beyond recal. But not so. The indefatigable zeal of General de Saussure, stimulated by a hearty appreciation of the interest attaching to the search, led him to hunt for months among old deeds and records, with the gratifying result of adding various facts to our knowledge of the object of inquiry, in addition to the recovery of the highly characteristic document of the antiquary's last will, and its evidences of the ruling passion strong in death.

In one of the public offices, in Charleston, my kind correspondent traced out the recorded copy of a deed by which one Hamerton, the Registrar of the Province, farms out his office to Alexander Gordon, and appoints him, as his attorney, to transact all the business and receive all the fees of the office. "The book," he adds, "in which the deed is recorded, is so rotted away by the ink as to make it scarcely legible, and the leaves fall in pieces as they are turned." Nevertheless, it has been recovered ere too late; and here we find the old Aberdeen Master of Arts, Music Teacher, Painter, Land Surveyor, Litterateur, Secretary of the London Antiquaries, of the Egyptian Club, &c., in an entirely novel character as Attorney-at-Law, and Registrar of the Province of South Carolina. Among other recorded conveyances, General de Saussure has also traced one of a large lot of land in Charleston, in 1746, to Alexander Gordon, which he must have possessed at the time of his death; though such was not the kind of worldly estate of which he made much account in the final disposition of his goods. It is also apparent, from the same record, that he was domiciled in South Carolina prior to 28th March, 1746, the date of the conveyance to him, and that he died before 23rd July, 1755, as upon that day Alexander Gordon and Frances Charlotte Gordon, as devisees of Alexander Gordon, convey the lot to Sir Egerton Leigh.

His son appears to have followed the last of the many professional vocations of the versatile Scot, as I find among the members of "the Union Kilwinning Lodge No. 4, Charleston, under the jurisdiction of the Grand Lodge of Ancient Freemasons of South Carolina," Alexander Gordon, Attorney-at-Law, admitted in 1756.

But the most interesting and authentic of all documentary evidence is the last will and testament of the old antiquary, for a certified copy of which I am indebted to the courtesy of George Buist, Esq., Judge of the Court of Probate of Charleston, the descendant of the Rev. Dr. Buist, a Scottish clergyman of early colonial times. It is dated the 22nd August, 1754, the testator being then "sick and weak of body, but of sound mind, memory and understanding, thanks be given to Almighty God for the same." It proceeds thus: "As to the worldly estate wherewith it has pleased God to bless me with, I give the same and dispose thereof in manner following,"—and then follows, very characteristically, this somewhat apocryphal "worldly estate:" "I give, devise and bequeath unto the Honorable Hector Berenger De Beaufain, Esq., his picture, portrait, or effigies, by me, the said testator, painted, drawn, and represented." In like manner he bequeaths to the Reverend John Heywood a similar portrait of himself; while to his son, Alexander Gordon, he leaves "my own picture, together with all and singular the paintings, views and representations by me, the said testator, painted, drawn, and represented." He next apportions to his daughter, Frances Charlotte, his silver watch, and to his son his gold ring: and then follow the more substantial bequest to his son and daughter, of a lot of land in Ansonborough, with the houses thereon, "with all and singular other my pictures hereinbefore and not particularly given," with the plate and household furniture, to be equally divided between them; and those all disposed of, the dying antiquary thus crowns his grateful bequests: "Item. It is my express will and desire, and I do hereby order and direct, that my said son shall, as conveniently as may be, cause to be printed and published, my book now remaining in manuscript, and tituled, A Critical Essay towards the Elustrating the History and Chronology of the Egyptians and other most ancient nations, from the earliest ages on record till the time of Alexander the Great, &c., &c., &c."; and then the testator bequeaths to his said son two-thirds of all the profits to accrue from this invaluable publication, and to his aforesaid daughter the remaining third! It is to be

feared that the heirs had no adequate faith in the marketable value of hieroglyphic elucidations, and the world still awaits the publication of this Critical Essay.

From an old diary kept by a South Carolinian gentleman, about a century ago, to which General de Saussure has had access, it appears that Frances Gordon married, on the 30th May, 1763, John Troup, probably the same whose name figures along with that of her brother, as John Troup, Attorney-at-Law, among the Freemasons of the Union Kilwinning Lodge of Charleston.

At this point all traces of Alexander Gordon, the elder, are lost. During the late war, the registry books of almost all the churches in Charleston were destroyed, and a diligent search among the older tombstones of its cemeteries has failed to reveal the last resting-place of himself or his descendants. But if Roman antiquary ever follows from the Old World on a pilgrimage to the tomb of the author of the Itinerarium Septentrionale, it must be sought, or fancied, beneath the shade of some Pride of India or other semi-tropical tree, where the River Ashley finds its way to the Atlantic through a region devoid of older antiquities than the trail of extinct forest tribes. When Alexander Gordon settled in South Carolina, the Catawbas, Yamassees, Cherokees, and other aboriginal tribes still clung to their old hunting grounds, much as the tribes of ancient Caledonia hovered round the settlements of its Roman colonists, when Inveresk and Cramond were the Roman sea-ports of the Forth. But such analogies were little heeded in that eighteenth century. The Roman antiquary had exchanged the favourite researches of his Scottish itinerary for more obscure Egyptian mysteries; and it may be doubted if, amid the novel duties of Provincial Registrar, it ever occurred to him that he stood in a relation to those native tribes, the aboriginal owners of the soil, analogous to that of a prefect of the old Roman proprætor among the Gadeni and Otadeni of the Lothians.

Among the paintings and drawings, plans, and surveys of Roman walls, altars, inscriptions, and all else, which Alexander and Frances Charlotte, his son and daughter, inherited from the antiquary, there must have been some covetable fruits of his early labours, more appreciable now than then, if they have escaped the ravages of time, and the still more destructive violence of civil war. Above all, there fell to the share of Alexander Gordon, jun., the portraiture

and effigies of the veritable antiquary himself, painted by his own hand, and which would now be a prized treasure in any archæological gallery of the Old World or the New.

But no descendants of the author of the Itinerarium are now known in South Carolina, of whom to inquire after the portrait of their famed ancestor; though the slight traces still recoverable seem to indicate that they prospered. From an historical sketch of the St. Andrew's Society of Charleston, which accompanies its printed rules, the office-bearers and members can be traced from its foundation. Assuming the Alexander Gordon of 1740-48, of the St. Andrew's Club, to be the antiquary himself, his son's name does not appear among its members, though the Gordons of those old colonial days are otherwise well represented: in 1757 by the Hon. Captain John Gordon; in 1761 by the Rev. Charles Gordon; and in 1765 by the Right Hon. Lord Adam Gordon, with others of later date, on to 1825, when another Alexander Gordon appears,—possibly the grandson or some later descendant of the antiquary,—who was secretary from 1828 to 1833. He then filled the office of treasurer till 1844, when he is found holding both offices. Thereafter he acted as secretary till 1850, when the name disappears from among the Society's office-bearers till 1859, at which year Alexander Gordon is elected first vice-president, and so continues till 1864, when he must have been removed by retirement or—if it be the same individual,—by death, at an advanced age. But, recent as that date is, the Southern War and all the troubles which followed have wrought many changes; and so far, my informant writes me, he has failed, in this and other cases, "to trace any connection with the descendants of Sandie Gordon of Oldbuck veneration."

John Troup, who in 1754 witnessed the antiquary's will, may be assumed to be the attorney-at-law of that name admitted to the Union Kilwinning Lodge of Ancient Free Masons in 1762,—the year before his marriage to Frances Charlotte Gordon, whose brother had joined the same Lodge a few years earlier. John Troup appears to have been a popular and prosperous man. On the reorganisation of the St. Andrew's Club, under its later name of the St. Andrew's Society, in 1787, after the War of Independence, he was chosen assistant-treasurer, and from 1790 to 1794 he filled the office of vice-president. He was distinguished in like manner by the brethren of the Kilwinning Lodge. From an old record recovered among the

papers of Dr. Edward Lynah, a former officer of the Lodge, which partially replaces official records, destroyed, along with all the jewels, books and charters, in the great fire of 1838, by which a large portion of the city of Charleston was reduced to ashes: it appears that on Monday, 13th January, 1794, the Right Worshipful Master, John Troup, entertained the Lodge at his own house; and in a note accompanying this entry, his death is recorded on the 30th January of the following year. A James Troup, probably his son, joined the Lodge in the latter year; but the destruction of nearly all the registry books of births, marriages, and deaths, at Charleston, during the late war; added to the absence of any recognition of the old scholar and antiquary, as such, in his later home: render it impossible to trace out his descendants through either line, or to recover any clue to the depository of the paintings and drawings mentioned in his will; and, above all, to that of the portrait of the testator himself, painted by his own hand, and specially bequeathed to his son as a family heirloom.

To the kind co-operation of General de Saussure, President of the St. Andrew's Society of Charleston, South Carolina, I owe the recovery of the most important facts relative to the colonial life of the author of the Itinerary; and I still indulge the hope that he may be able to crown his persevering and successful labours by tracing out this portrait of Sandy Gordon,—doubtless in the full glory of wig, ruffles, and lapel waistcoat, of the Georgian era,—and gracing with so interesting a piece of historical portraiture the hall of the Society of the Sons of St. Andrew, founded in the city of Charleston nearly a century and a-half ago.

ON THE SPECIES OF

FAVOSITES OF THE DEVONIAN ROCKS OF WESTERN ONTARIO.*

BY H. ALLEYNE NICHOLSON, M.D., D. Sc., M.A., F.R.S.E.,

Professor of Natural History in University College, Toronto.

Those who are acquainted with the subject will not need to be told that the present communication is to a large extent simply supplementary to the admirable paper published by Mr. Billings upon the Devonian Corals of Canada West, in which the species of *Favosites* are treated at considerable length (Canadian Journal, New Series, Vol. iv. p. 97). In some respects I find myself unable to agree with this eminent palæontologist in the conclusions at which he has arrived; and as I have had the opportunity of carefully examining a very extensive series of specimens, I am induced to submit my views upon this very perplexing group of corals.

The genus *Favosites*, Lamarck, comprises branched or massive corals, composed of numerous more or less polygonal corallites, which are divided internally by transverse septa or "tabulæ," sometimes quite rudimentary. The walls of the corallites are perforated by one, two, three, or more rows of "mural pores," by which the separate corallites are placed in communication. The septa are absent or rudimentary, being at most represented by tubercles or short spines.

The generic limits of *Favosites* have not been universally agreed upon by palæontologists, and the genera *Emmonsia*, Edw. & H., and *Astrocerium*, Hall, have been founded upon differences which Mr.

* As the present communication will be published, in a somewhat enlarged form, in a Report which I am preparing upon the organic remains of certain of the Palæozoic formations of Ontario, I have not in the meanwhile thought it necessary to prepare illustrations of the species therein described.

Billings rightly regards as not of generic value. Thus, *Emmonsia* is distinguished from *Favosites* simply by the incompleteness of the tabulæ; but this same peculiarity can sometimes be observed even in *F. Gothlandica*, the type-species of *Favosites*, individual examples of which not very uncommonly exhibit portions with the complete tabulæ of *Favosites*, and other portions with the imperfect tabulæ of *Emmonsia*. In the same way, there are many examples of *Favosites*, of more than one species, in which the tabulæ, whether naturally or from some peculiarity in the manner in which they were preserved, are quite rudimentary, and are even more imperfect than they are in ordinary specimens of *Favosites hemispherica*, upon which the genus *Emmonsia* was founded.

The genus *Astrocerium*, again, was founded by Hall (Pal. N. Y. Vol. ii. p. 126) to include corals exceedingly like *Favosites* in all superficial characters, but differing in the possession of spiniform septa. It would appear, also, though this character is not specially mentioned, that Hall believed the corals which he referred to *Astrocerium* to be destitute of mural pores. This latter point, if it could be proved, would amply suffice to separate *Astrocerium* generically from *Favosites;* but there is much reason to think that the apparent absence of mural pores may be due to mineralisation merely. At any rate, it is far from uncommon to meet with examples of undoubted species of *Favosites* in which no pores can be detected. The other point—namely, the presence of spiniform septa—is also not a satisfactory distinction, partly because some examples of *Favosites* exhibit the same thing, and partly because some examples which would generally be referred to *Astrocerium* from their geological position and general appearance, are without any traces of septa. Upon the whole, therefore, it would appear that the genera *Astrocerium* and *Emmonsia* cannot be retained.

The numerous species of *Favosites* may be divided into two groups, according as they are massive or ramose, *F. Gothlandica* being the type of the former, and *F. polymorpha* of the latter. The characters which have been relied on as separating the species of this genus are chiefly the following:—1. The diameter of the corallites; 2. The equality or inequality in size presented by the corallites; 3. The completeness or incompleteness of the tabulæ; 4. The number of rows of mural pores; 5. The position of the mural pores, whether on the flat faces of the polygonal corallites or on their angles; 6.

The presence or absence of rudimentary septa. For convenience of reference, the more important species of *Favosites* may be arranged as in the following table, it being remembered that some of the species here enumerated are perhaps not valid, and the characters derived from the number of rows of mural pores are not *constant*, even in the limits of the same species:

A. Massive Species.

a. Tabulæ complete. One row of mural pores, placed on the faces of the corallites.

1. *Favosites basaltica*, Gold.
2. *Favosites turbinata*, Billings.

b. Tabulæ complete. Two rows of mural pores, placed on the faces of the corallites.

3. *Favosites Gothlandica*, Lam.
4. *Favosites Niagarensis*, Hall.

c. Tabulæ complete. Three rows of mural pores, placed on the faces of the corallites.

5. *Favosites multipora*, Lonsd.
6. *Favosites Troosti*, Edw. & H.

d. Tabulæ complete. Mural pores situated in the angles formed by the prismatic walls of the corallites.

7. *Favosites alveolaris*, Gold.
8. *Favosites aspera*, Gold.

e. Tabulæ more or less incomplete. Mural pores in one, or more commonly in two rows.

9. *Favosites hemispherica*, Yandell & Shumard.
10. *Favosites Forbesi*, Edw. & H.

B. Ramose Species.

a. With one row of mural pores, on the faces of the corallites.

11. *Favosites polymorpha*, Gold.
12. *Favosites cervicornis*, De Blainville.
13. *Favosites reticulata*, De Blainville.

b. With one row of pores, placed in the angles formed by the prismatic angles of the corallites.

14. *Favosites fibrosa*, Gold.

Of the above-mentioned species, the ones which have as yet been recognized as occurring in the Devonian Rocks of Canada are *Favosites Gothlandica*, Lam., *F. basaltica*, Gold., *F. hemispherica*, Yandell & Shumard, *F. Forbesi*, Edw. & H., *F. turbinata*, Billings, *F. cervicornis*, De Blainville, and *F. polymorpha*, Gold.

I. Favosites Gothlandica (Lamarck).

The following is the diagnosis given by Mr. Billings of this cosmopolitan species in the paper already referred to :—" Corallum forming spheroidal, pyriform, or large hemispheric or flattened masses ; corallites is general between one line and one and a half lines wide, sometimes less or more, often two lines ; transverse diaphragms usually complete, rarely incomplete ; mural pores in one, two or three series, usually two, those of the same series about half a line distant, sometimes less ; pores surrounded by an elevated margin ; faces of the tubes with one or two longitudinal striæ, more or less distinctly developed ; radiating septa represented by a series of small spines, often in the rudimentary form of tubercles."

The chief characters which may be relied upon as distinguishing typical examples of *Favosites Gothlandica*, Lam., are the following : 1. The corallites are of comparatively large size, usually almost one and a half lines in diameter, but varying from one to two lines. 2. The corallites are generally markedly polygonal, and are for the most part tolerably uniform in their dimensions. 3. The mural pores are in two rows, placed alternately, or sometimes oppositely, on the faces of the corallites, and surrounded by elevated margins. 4. The tabulæ are complete, that is, extend from one side of the theca to the other. 5. Perfect examples are usually of a more or less hemispheric or pyriform shape, and have their lower surface enveloped in a thicker or thinner, concentrically-wrinkled epitheca.

Whilst the above characters are generally found to exist in typical specimens of *F. Gothlandica*, there are, nevertheless, numerous departures from this state of things, which must be attended to in studying this protean species :

The size of the corallites in some specimens not otherwise separable from *F. Gothlandica*, is sometimes uniformly below the average in an entire colony, not exceeding one line, or even a little less than this. This might not seem an important difference, but, as noticed by Mr. Billings, it gives the coral an apparently very distinct general appearance.

The corallites, though usually distinctly polygonal, are sometimes nearly round throughout an entire colony; and their relative size in the same mass may vary to some extent. Thus, it is not uncommon to meet with colonies, in which the great majority of the corallites

have a diameter of one and a half lines, whilst some few have a diameter of a line or a little less.

Whilst the mural pores are usually in two rows, there is sometimes but a single row, and sometimes three rows; and single colonies may be found to combine all these variations in different corallites. It is probable that the typical forms upon which Goldfuss founded his species *F. basaltica*, as believed by Lonsdale and McCoy, are truly referable to specimens of *F. Gothlandica*, Lam., in which but a single row of pores is present. *F. Goldfussi*, Edw. & H., again, seems unquestionably to be nothing more than a variety of *F. Gothlandica*, as asserted by Mr. Billings, the only distinctive characters brought forward by its authors being the unreliable ones that the rows of pores vary from one to three, and that they are more closely approximated than in typical examples of the latter. Lastly, the elevated ring which is often found surrounding the pores in *F. Gothlandica*, is in many cases absent, single specimens often exhibiting both conditions. It may be added that the pores themselves, even in specimens otherwise well preserved, can by no means universally be detected.

The tabulæ are for the most part complete, extending from one side of the theca to the other; but this condition of parts is by no means constant. Specimens, otherwise well preserved, sometimes exhibit a complete absence of the tabulæ, the corallites being hollow. Others exhibit a condition of things very similar to what occurs in *Favosites Forbesi*, though not so marked. The inner surfaces, namely, of the corallites exhibit rudimentary and imperfect tabulæ, in the form of little projecting lamellæ, or ridges, which project into the cavity of the theca. Specimens exhibiting this peculiarity can usually be distinguished from examples of *F. Forbesi* without difficulty, by the fact that the ridges representing the tabulæ are not so closely set, are more delicate and plate-like, usually run across the whole width of the corallite, and do not give to the interior of the theca the extraordinary roughness of appearance which is characteristic of *F. Forbesi*. In other specimens, again, the tabulæ have the characters which are distinctive of *F. hemispherica*, being closely set and incomplete, often more or less bent, and commonly interlocking. Such specimens, however, are readily separated from those which are rightly referred to *F. hemispherica*, by the fact that in the former some of the corallites are always found to exhibit the complete tabulæ

of *F. Gothlandica*, whilst the size of the corallites is on the average much more considerable. In fact, the commonest condition in the specimens here alluded to is that alternating portions of the mass exhibit the complete tabulæ characteristic of *F. Gothlandica* and the incomplete tabulæ characteristic of *F. hemispherica*. Mr. Billings has also pointed out that the same corallite sometimes exhibits complete tabulæ in one portion of its course and incomplete tabulæ in another.

As to the condition of the septa, the diagnosis of the species would, perhaps, be altered for the better by the statement that as a general rule the septa are absent, or at any rate are indeterminable. They are, however, not uncommonly to be recognized in the form of small inequalities or minute tubercles on the interior of the walls of the corallites; and they sometimes exist in the condition of distinct spines, though I have never noticed this state of things in any of the specimens from the Corniferous Limestone. It is, however, not uncommon in Silurian specimens, and it has been observed and figured by Mr. Billings from Canadian examples found in the Corniferous formation.

Adult colonies of *F. Gothlandica* usually have the form of much depressed pyriform masses, but great variations exist in this respect; and young colonies are usually spheroidal or simply pyriform, whilst the largest and oldest aggregations tend to assume the form of dome-shaped or hemispheric masses. The colony is based upon a concentrically-wrinkled epitheca, which is very commonly wanting in decorticated specimens, and attains a considerable thickness in aged examples.

Locality and Formation.—Common throughout the Corniferous Limestone in Canada West.

II. Favosites basaltica (Goldfuss).

It is with regard to this species that I find myself compelled, though with great diffidence, to differ from the conclusions arrived at by Mr. Billings (Canadian Journal, Vol. iv. p. 106), more widely than as concerns any other form described by him. Having, however, had the opportunity of examining a very extensive series of specimens, I cannot at present accept his views with regard to the limits of this species. It seems pretty certain, to begin with, that the forms included by Goldfuss (*Petref.* Pl. xxvi. figs. 4 *a—d*) under the name

of *F. basaltica*, differ from one another in their characters to such an extent that they would usually be (as they actually have been) separated into two distinct species. On the one hand, making the existence of a single row of mural pores the distinguishing character of the species, Goldfuss includes under this head forms which differ only in this character from *F. Gothlandica;* and, on the other hand, he associates with these other forms which differ very widely from *F. Gothlandica* in most of their characters, but which are believed to agree with the preceding in the above-mentioned feature. We may, therefore, consider that the *F. basaltica* of Goldfuss was made originally to include the following two groups of specimens:—

1. Specimens agreeing with *F. Gothlandica*, Lam. in possessing prismatic corallites, the size of which is upon the whole generally uniform, but which differ from *F. Gothlandica* in possessing but a single row of mural pores (*Petref.* Pl. xxvi. figs. 4 *c*, 4 *d*).

2. Specimens which agree with the preceding in having sometimes (not always) a single row of pores, but which differ in having nearly rounded or cylindrical corallites, the sizes of which are exceedingly unequal; whilst the place of complete tabulæ is taken by numerous short projecting lamellæ, which impart a peculiar and characteristic appearance to the inner surface of the corallites (*Petref.* Pl. xxvi. figs. 4 *a*, 4 *b*).

Now, it is the first of these groups of specimens that palæontologists have generally agreed in regarding as the type-form of *F. basaltica*, Gold.; and the chief difference of opinion has simply concerned the question whether these forms are separable from *F. Gothlandica*, Lam., or not. Some authorities, such as McCoy and Lonsdale, maintain, apparently with good reason, that these forms are truly referable to *F. Gothlandica;* whilst others, such as Milne Edwards and Haime, retain these forms under a separate species, under the name of *F. basaltica.* Whichever of these views may be ultimately adopted, I, at any rate, have seen no specimens from the Corniferous Limestone of Western Ontario which appear to me to be truly referable to the type here alluded to. We do meet, certainly, with specimens exhibiting prismatic basaltiform tubes, in every respect resembling *F. Gothlandica*, except that the corallites are on the average a little smaller, and that they exhibit but a single row of mural pores. These specimens I was at first sight disposed to set down as belonging to *F. basaltica*, and I have seen them so named by others. I have, however, suc-

ceeded in fully satisfying myself that the specimens in question are truly decorticated examples of *F. turbinata*, Billings, in which there is also but a single row of pores. Examples of this species can be found with the characteristic epitheca in all stages and in all degrees of removal, and when it has entirely disappeared, all the characters of this first section of *F. basaltica*, Gold. are assumed, the only distinguishing mark, perhaps, being that the walls of the corallites have the comparatively great thickness which is characteristic of *F. turbinata*. It need only be added in this connection, that unmistakable examples of *F. Gothlandica* not uncommonly exhibit, as has been often noticed by other observers, the single rows of pores which Goldfuss believed to be characteristic of *F. basaltica;* though I am not aware that any colony of *F. Gothlandica* has ever been observed in which *all* the corallites possessed but one row of mural pores.

We have now to consider the other group of specimens included by Goldfuss under the head of *F. basaltica*, namely, those in which the corallites are more or less circular or cylindrical in shape, and are very unequal in size, whilst they possess other peculiarities as well. These specimens were separated from *F. basaltica* by Milne Edwards and Haime, under the name of *Favosites Forbesi;* but they were subsequently re-united with the preceding group of forms by Mr. Billings, the name *basaltica* being retained for the combined groups. My own opinion, as I have already said, is that the colonies with small, nearly uniformly-sized, prismatic, and uniporous corallites (as occurring in the Corniferous Limestone), are referable to decorticated examples of *F. turbinata*, Billings. I, therefore, am at present disposed to believe that *Favosites Forbesi*, Edw. and Haime, is a good species, clearly separable from the type-form of *F. basaltica*, as generally accepted (though including part of *F. basaltica* of Goldfuss); and I shall describe under this name the second group of specimens to which I have drawn attention.

III. Favosites Forbesi (Edw. & Haime).

Corallum forming spheroidal, pyriform, cylindroidal, or depressed hemispheric masses, composed of corallites which are generally circular or cylindrical in shape, and which are usually of very unequal sizes; mural pores usually in two alternating rows, rarely in a single row; tabulæ mostly rudimentary, and represented by very close-set projecting lamellæ, which roughen the interior of the corallites;

radiating septa represented, sometimes clearly, sometimes indistinctly, by a number of longitudinal ridges or striæ.

The typical examples of this species are usually spheroidal, cylindroidal, or club-shaped, and possess almost perfectly cylindrical corallites. The corallites are large and small, each larger one being surrounded by an incomplete ring of smaller. The larger corallites are uniformly about a line and a half or a line and three quarters in diameter; but the smaller corallites vary considerably in size, from an eighth of a line up to almost a line. The mural pores often cannot be made out, but in all the specimens I have seen there are constantly two rows of pores on the larger corallites, thus differing materially from *F. basaltica*, Gold. Mr. Billings, however, states that the smaller tubes possess but a single row of mural pores. The condition of the tabulæ is exceedingly peculiar; and I do not think it can be due, as suggested by Mr. Billings, to the manner in which fossilisation was effected; since it is constantly present in all our Canadian examples of this species, whilst these occur side by side with examples of *F. Gothlandica* in which the tabulæ are complete. The tabulæ, namely, are present in an incomplete and rudimentary form, being represented by numerous close-set lamellæ, ridges, or short spines, which project a short way into the interior of the corallite, giving it a most peculiar and easily-recognised appearance. The most perfectly preserved specimen in my possession, in which the tubes are filled up, instead of being as usual hollow, exhibits tabulæ which are slightly more developed than those just described, approximating closely to what is observable in *F. hemispherica*. The tabulæ, namely, in this specimen, are close-set, thin, flexuous lamellæ, which for the most part extend almost half way across the corallite, often bifurcating or interlocking at their free ends; but which in some instances actually become complete, and pass right across the corallite. The radiating septa are quite rudimentary, and, when discernible at all, have the form of obscurely-marked longitudinal striæ. Lastly, I have observed in several specimens, especially in those of a cylindroidal or clavate form, the peculiar feature that the calices of a greater or less moiety of the colony are closed by an epitheca, closely resembling what is observed in *F. turbinata*, Billings.

Mr. Billings has shown that small specimens having the characters above mentioned pass by a perfect transition into much larger pyriform specimens, which present the peculiarity that the corallites at

the base of the mass are large and unequal in size, whilst those at the summit are on the average smaller, and are nearly equal in size. The same distinguished palæontologist has also pointed out that the younger pyriform colonies also pass, by an equally perfect transition, into elongated cylindrical forms, often of considerable length. Both these statements I am enabled to confirm from my own observations.

Besides the typical examples of *F. Forbesi* which I have just described, there occur not uncommonly others which I cannot at present separate from this species, though they present several more or less well-marked peculiarities. The corallum in the examples in question resembles in shape the more ordinary individuals of *F. Gothlandica,* being circular and flattened above, and springing from a pointed and attenuated base, which was doubtless enclosed in an epitheca. The corallites are not distinctly circular, but are cylindroidal or sub-prismatic, and they are nearly equal in size, having an average width of one line. Interspersed, however, with the ordinary corallites are some smaller ones having a diameter of half a line or a little less. The mural pores appear to form a double series. The radiating septa are well marked, and form a series of about twelve strong ridges which run longitudinally in the interior of the corallites. These septal ridges are crossed by rudimentary tabulæ in the form of short spine-like lamellæ, about three or four in the space of a line, and not placed on the same level in contiguous ridges. It is possible that these forms are specifically distinct from those which I have here referred to *F. Forbesi:* but I do not feel that it is safe to separate them at present.

Locality and Formation.—Corniferous Limestone, Port Colborne, and lot 6, con. 1, Wainfleet.

IV. Favosites hemispherica (Yandell and Shumard).

In its essential characters, this species is very closely allied to *F. Gothlandica.* Externally, however, it may in general be distinguished from the latter by the much smaller size of the corallites, which are usually only from one twenty-fourth to one twentieth of an inch in diameter, though they sometimes reach one line. Internally, the species is distinguished by the fact that the tabulæ are incomplete, very thin and closely set, usually extending only about half way across the corallite, and often interlocked towards its centre. Some of the tabulæ, however, are usually complete. The mural pores

are stated to be in one, two, or three rows (Milne Edwards and Haime, and Billings); but I have not succeeded in detecting their arrangement in any of the Canadian examples which have come under my own notice. According to Milne Edwards and Haime, also, there are twelve well developed septa, but these are indeterminable in the Canadian specimens. This species may turn out, as suggested by Mr. Billings, to be identical with *F. Gothlandica*, but its distinctive characters can usually be recognised with such ease as to justify placing it under a separate specific title. There can be no hesitation, however, in following Mr. Billings in his refusal to adopt the genus *Emmonsia*, proposed by Edwards and Haime to receive this species, and founded simply upon the incomplete condition of the tabulæ.

Locality and Formation.—Common in the Corniferous Limestone of Ridgeway, Port Colborne, and many other localities in Western Ontario.

V. Favosites turbinata (Billings).

"Corallum forming elongate turbinate masses, sometimes two feet in length and six inches in diameter, often curved at the base. Corallites nearly of a uniform size, usually somewhat less than a line in width; transverse diaphragms thin, flat, flexuous, complete or incomplete. Only one row of pores has been observed. Whole surface, except the upper part, covered with a strong epitheca which closes the mouth of the cells."—(Billings.)

There can be no question as to the specific distinctness of this most remarkable species, the most singular representative of the genus. The form of the colony varies much, but is in typical specimens that of a straight or curved cone, which varies in length from less than an inch up to two feet. Other examples are more or less cylindrical, either straight, like Orthoceratites, or more commonly curved or twisted, and of irregular diameter. Other specimens, again, are irregularly curved masses, which look like large potatoes.

In perfectly preserved specimens, the whole of the colony except the upper surface is covered by a thinner or thicker epitheca, which seals up the calices of the corallites. The summit of the colony is usually somewhat cup-shaped (though this may not be a natural appearance); and it is only here that the corallites are open. In most specimens the epitheca is smooth, and is sufficiently thin to allow of the walls of the corallites to be distinctly traced through it.

In such cases, the mouth or calice of the corallites appears to be closed with a kind of disc, which is sometimes level with the general surface, often depressed slightly below it, and sometimes elevated in the form of a rounded boss.

In a very large number of specimens, the epitheca has been more or less denuded over parts where it originally existed. In such cases it is mostly only the epitheca which has been removed, and the corallites are left intact and uninjured, with their calices quite empty. In other cases, the epitheca has been entirely decorticated, whilst the corallites may remain uninjured, or may be more or less broken away towards their outer ends. Such specimens can in general be readily recognised by the general shape of the colony and the peculiar characters of the corallites. In other cases, lastly, the epitheca is sufficiently thick to render the calices of the corallites below obscure or invisible. In these instances, concentric lines of growth are usually exhibited by the epitheca, and these are sometimes developed into such strong and regular annulations as to similate pretty closely the appearance of perfect specimens of *Clisiophyllum Oneidaense*, Billings.

The corallites radiate from the imaginary axis of the colony, either in straight lines or curves; and the size of the mass in the turbinate specimens increases rapidly by the interstitial addition of fresh corallites. In shape the corallites are rounded, sub-prismatic, or more commonly distinctly prismatic. In size they are by no means uniform, there being generally a considerable number of under-sized corallites intercalated amongst the nearly equal-sized larger tubes. The larger corallites have most commonly a diameter of from a line to a tenth of an inch, whilst the smaller ones may be half a line or less in width.

The tabulæ are commonly complete, sometimes incomplete, and are about three or four in the space of a line.

The mural pores, so far as I have observed, are uniformly in single rows, placed on the flat surfaces of the corallites, not surrounded by an elevated border, and of comparatively large size. Their distance apart is most commonly about half a line, but is sometimes as much as a line.

The walls of the corallites are of unusual thickness, in the great majority of cases; and they are not undistinguishably fused with those of contiguous corallites. Hence the lines of division between the walls of neighbouring tubes can be plainly seen in parts from

which the epitheca has been removed, or even through the epitheca itself when the latter is of no great thickness.

Completely decorticated specimens might very readily be referred to one of the two groups of forms usually placed in *F. basaltica*, Gold.—the group, namely, comprising forms with prismatic corallites of small size, with but a single row of pores. Specimens, again, exhibiting longitudinal sections, but not exhibiting the outer surface, would also, almost certainly, be referred to *F. basaltica*. In the former case, the thickness of the walls of the corallites, and their being generally quite distinct and not fused with one another, would usually suffice for their determination. In the latter case, a positive determination would probably be impossible, unless some portion of the outer surface could be observed.

Locality and Formation.—Common in the Corniferous Limestone of Ridgeway, Port Colborne, and other localities in Western Ontario.

VI. Favosites polymorpha (Goldfuss).

Corallum dendroid, often dichotomously branched, or reticulated; diameter of branches varying from a little over a line to more than an inch. Corallites radiating in all directions from an imaginary axis nearly at right angles, more or less contracted internally and widening as they approach the surface. Diameter of corallites from half to three quarters of a line in branches of half an inch across, often with smaller ones intercalated. Calices in reality polygonal, but usually rendered circular by thickening of their walls. Mural pores in a single series.

The ramose species of *Favosites* are so variable in their characters, that I propose to treat them separately, along with the species of *Alveolites*, to which they present many superficial resemblances. The definition above given would include the typical forms of *F. polymorpha*, but numerous examples are to be met with which may be regarded as being on the one hand mere varieties of *Favosites polymorpha*, or which may on the other hand be regarded as distinct species. Such, for example, are the forms which have been referred by De Blainville to the species *F. cervicornis* and *F. dubia*, and which have been regarded with more or less doubt as distinct by subsequent observers. Besides the above, the Devonian Rocks of Western Ontario yield at any rate one ramose form of *Favosites* which appears to be distinct from any as yet described.

CLASSICAL NOTES.

BY W. D. PEARMAN, M.A.,
CLASSICAL TUTOR, UNIVERSITY COLLEGE, TORONTO.

Read before the Canadian Institute, February 1st, 1873.

The first point to which I would call your attention is an attempt to explain an anomaly in the use of the tenses of the subjunctive, in Latin, in conditional propositions. This anomaly consists in the employment of the present subjunctive in the protasis, followed by an imperfect in the apodosis, whereas, from the ordinary rules of syntax, we should expect to find the same tense employed in both, or, if there were any variety, that the present and perfect or the imperfect and pluperfect might be interchanged, and not, as in the cases to come before us, to have a definite tense in the protasis followed by an indefinite tense in the apodosis. Some striking instances of this anomaly are quoted by Munro, in his edition of Lucretius, in a note on Bk. v., v. 277. They are Virgil, G. iv. 116; Tibullus i. 4, 63; i. 8, 22; Catullus vi. It occurred to me that the difference in tense might be accounted for by the preference which the Latins, as well as the Greeks, always gave to the present tense, in such cases as an action, though begun in *past* time, was regarded as still going on: *e.g.*, where in English we say "I have long thought," the Latin would be "diu cogito;" because we still continue to think at the *present* time, although the first occasion of our doing so may have been some time *past*. This explanation, so far as their meaning is concerned, will suit the passages quoted. In the first, Lucret. v., 277: Qui nisi contra corpora retribuat rebus recreetque fluentis omnia jam resoluta forent, &c. Lucretius says that all things would have long ago been resolved and converted into air, if the air had not kept restoring them in the form of showers. Here we see that, though the act of resolution would have taken place at any time *past*, the act of restoration is still going on; and therefore, in accordance with the use which I have mentioned, is expressed by the *present* subjunctive.

Again, Virg. G. iv. 116: Extremo ni jam sub fine laborum vela traham et terris festinem advertere proram Forsitan . . . . et

canerem, &c. Virgil says that he would have sung of other things, if he had not been (as he still was) furling his sails and hastening to turn his prow to the shore. Next, Tibull. i. 4, 63: Carmina ni sint, Ex humero Pelopis non nituisset ebur. The ivory shoulder shone forth as soon as the songs were made, but those songs still exist.

Ibid i. 8, 22: Cantus et e curru Lunam deducere tentat, et faceret si non æra repulsa sonent. In this case we have the present tense, because the troubles of the moon are still healed, as often as they occur, by the same process: whereas she would have been drawn down by the first incantation.

Catull. vi.: Flavi, delicias tuas Catullo ni sint illepidæ atque inelegantes Velles dicere nec tacere posses. Flavius would have spoken of her long ago, if she had not been (as she still was) unladylike, &c.

In all these cases we see that while the state or action, described in the conditional clause, may be considered as still existing or going on as much now as it ever did, that in the other clause might have taken place indefinitely at any time past.

Sophocles' Antig., 250 foll., and Æschylus Sept. c. Theb., 1042. It is generally believed that Sophocles, in his Antigone, intended to take up the fortunes of the Œdipodæ at that point where Æschylus leaves them, in his play of "The Seven against Thebes;" and it has been remarked that we have the character and conduct of his heroine, Antigone, plainly foreshadowed in the last speech which the Antigone of Æschylus utters as she quits the stage. One point, however, which I have not seen noticed by any of the commentators, struck me as proving, in a remarkable manner, that Sophocles must have intentionally shaped his play, so as to make it accord with the circumstances as presented by Æschylus; and that is the minuteness of detail with which he makes the guard, who had been set to watch the dead Polynices and to prevent any attempt to bury him (as a punishment for his unnatural conduct towards his native city), inform us that, though dust has been sprinkled on the dead body, so as to satisfy the bare ceremonial requirements of burial, the ground round about is hard and unbroken, and there is no earth thrown up by the spade, but the doer of the deed has been one who has left no sign. I cannot help thinking that Sophocles must have had v. 1042 of the Sept. c. Theb. in view when he wrote these lines, for there Antigone says that her brother shall be buried, even if she has to do it herself, carrying the dust in the bosom of her robe. The whole

passage, it is true, in which this line occurs is evidently imitated by Sophocles in different parts of his Antigone, but this apparent correspondence, in the minutest detail, seemed to me so remarkable as to be worthy of notice.

Æschines *contra* Ctesiph., sec. 77. This passage has always puzzled the commentators, and no satisfactory explanation has hitherto been offered. The explanation here proposed, although I am far from presuming to say that it is by any means a certain one, was suggested by a passage in the Agamemnon of Æschylus, v. 358, sqq., where what would seem to be a similar metaphor is employed. In the passage before us, Æschines is holding up to ridicule the strange metaphors which he says that Demosthenes uses, and he expresses his surprise that the Athenians can sit to hear such coarse language. The other expressions which he quotes are metaphors taken from the vineyard and hunting field: *e.g.*, "Men have lopped the branches of the people;" "Our affairs have been hamstrung." That which follows is, if I am right in my conjecture, a metaphor from fishing. "We are being huddled in rush-nets to the narrows, men are stringing us (or 'ripping us up') as they do gar-fish." In this rendering, the MSS. reading *πρωκτον'* gives more force to the expression, although it justly lays Demosthenes open to the charge of coarseness which Æschines brings against him. The word *φορμοῥῥαφούμεθα* is a compound one, one of its roots signifying "a rush or wicker mat" also used for "a fishing basket," and the other "to sew or fasten together." It only occurs in this one passage. L. and S. translate it "to squeeze up." The word *βελόνη* signifies both "a needle" and a kind of fish—"gar-fish." It seems not improbable that ambiguity was studied, and the metaphor over-strained in the attempt to convey the two ideas of netting fish and sewing with a needle. The passage which I quote from the Agamemnon, exactly illustrates the first part of the metaphor. The walls of Troy are described as having a net thrown over them in such a way that not one of the people can escape the *μέγα δουλείας γάγγαμον ἄτης*—"the mighty trawl net of slavery," as Paley translates it. The *γάγγαμον* was the narrow part of the net, into which the game or fish were driven in order that they might be caught with more ease, and it thus corresponds with *τὰ στενά*, "the narrows," in this passage of Æschines.

Tacitus, Hist. i., 71. *Sed ne hostis metueret conciliationis adhibens, statim inter intimos amicos habuit.* This passage has been variously

altered, inasmuch as it is plainly impossible to extract sense without gross violation of the rules of syntax. The reading which Halm calls "palmarem emendationem," communicated to him by Fleckeissen, seems to me too much like a re-writing of Tacitus: *i.e.*, *Sed deos testes mutuæ reconciliationis adhibens*, &c.; and the other readings are disposed of summarily by Orelli and others. The variant reading, which some of the MSS. are reported to have, *hostes* and *conciliationes* is scarcely worth attention, as *is* and *es* are said to be constantly interchanged in MSS., partly owing to the unsettled orthography of many of the plurals of substantives, &c. It has occurred to me that the alteration of *metueret* into *metu esset*, with a comma after *conciliationis*, would make excellent sense, while the change of *metueret* into *metu esset* is almost the slightest possible, if we consider how this tense is formed, (Key's Lat. Gr., sec. 483.) Thus we should have *Nec Otho quasi ignosceret sed, ne hostis metu esset conciliationis, adhibens statim inter intimos amicos habuit.* The mistake, as I think, of those who would read *metum . . adhiberet*, &c., has been in supposing that *adhibens* was necessarily to be separated from the words which immediately follow. *Adhibere* is frequently used in the sense of "admit or invite to one's counsels;" "to employ."

I would translate then, "Nor did Otho treat him as though he were pardoning him but, that he might not be an enemy through mistrust of reconciliation, immediately employing him, he enrolled him among his intimate friends." *Hostis*, "public enemy," as Church & Brodribb remark, is a term not improperly applied to the enemy of the emperor.

Demosthenes de Corona, sec. 292. *καὶ μὴ τῇ προαιρέσει τῶν κοινῶν ἐν τῷ τῶν ἐναντίων μέρει τετάχθαι.* Here *προαιρέσει τῶν κοινῶν* is generally taken to mean *τῇ πολιτείᾳ* and translated "public policy." The context, however, would seem, in my opinion, to require that its ordinary meaning should be given to the word *κοινῶν*, *i.e.*, "shared in common." Demosthenes charges Æschines with rejoicing at the success and grieving at the reverses, not of his own citizens but of the enemy. He says then that Æschines, by his view of what are common interests (*i.e.*, affect him equally with others) is arrayed among the party of the enemy. "Sympathies" would, in my opinion, be a better rendering of this phrase, in the present instance, than "public policy."

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

The full title of the work which it is proposed to reprint, with annotations, is as follows:—"A short Topographical Description of His Majesty's Province of Upper Canada, in North America, to which is annexed a Provincial Gazetteer. London: Published by W. Faden, Geographer to His Majesty, and to His Royal Highness the Prince of Wales, Charing Cross, 1799. Printed by W. Bulmer and Co., Russell Court, Cleveland Row, St. James's." In the second edition, published in 1813, "His Royal Highness the Prince of Wales" is altered to "His Royal Highness the Prince Regent," and the Printers are Hamblin and Seyfang, Garlick Hill, Thames Street. In the first edition the following "Advertisement" or Preface appears:—"The accompanying Notes and Gazetteer were drawn up by David William Smith, Esq., the very able Surveyor General of Upper Canada, at the desire of Major-General Simcoe, on the plan of those of the late Capt. Hutchins for the River Ohio and the Countries adjacent. London, October 1st, 1799." The David William Smith here named was born in 1764. He was the son of Lieut.-Col. Smith, of the Fifth Regiment of Foot, formerly of Salisbury, who died Commandant at Fort Niagara in 1795. At an early age he was appointed an Ensign in his father's regiment, in which he subsequently obtained the rank of Captain. Afterwards he was called to the bar in Upper Canada, with precedence as Deputy Judge Advocate. Besides being Surveyor General, he was also one of the Trustees for the Six Nations, and of the Executive Council of the Committee for administering the Government in the Governor's absence; a member of the first three Upper Canadian Parliaments, and Speaker of the House of Assembly in two of them. On his return to England in

1802, he resided at Alnwick, where he was principal agent to the Duke of Northumberland. He was created a Baronet in 1821. In 1837 he died. He is spoken of as "a high-minded English gentleman, universally beloved for the kindness and warm-hearted generosity of his character." In Burke's General Armory, Sir David is described as being "of Upper Canada;" and in allusion doubtless to his services in that Province, his shield, Burke informs us, bore a beaver "on a chief;" and over the crest appeared the word "Canada." The whole article in Burke reads as follows:—"Smith (as borne by the late Sir David William Smith, of Upper Canada, and of Preston, County of Northumberland, Baronet.) Sir David left four daughters; the eldest married to Charles Tylee, Esq., and the youngest to Edward Tylee, Esq. Per pale, gu. and az.: on a chevron, or, between three cinquefoils, ar. as many leopard's faces sa.; on a chief of the third, a beaver passant proper. Crest: A sinister hand erect apaumé, couped at the wrist, gu., the wrist encircled with a wreath of oak, or, the palm charged with a trefoil slipped, ar.; on an escroll above—CANADA. Motto: Pro rege et patriâ. Sir David left no heirs male. His only son was killed at Quiberon, in 1811, on board His Majesty's frigate, *Spartan.*"

The Instructions issued to the early surveyors by Sir David, while acting officially in Upper Canada, are still preserved. They are full of interest to the present inhabitants of the localities named. We give the letter addressed by him to Mr. Augustus Jones, at York, dated Niagara, 15th June, 1796, from which we gather that in 1796 an extension of the limits of York (Toronto) was already in contemplation. (The Governor referred to is still Gen. Simcoe.) "Sir: I enclose to you a plan of the County of York, shewing what has been surveyed, that in case His Excellency may be pleased to order it to be enlarged, you will be able to comply with His Excellency's instructions, either by laying out another range of blocks to the northward, or by continuing them to the eastward. I am, Sir, &c., D. W. Smith, Acting Surveyor General."

The Notes and Gazetteer of Upper Canada about to be reproduced, are said above to have been drawn up on the plan of those of the late Capt. Hutchins for the River Ohio and countries adjacent. Of this Capt. Hutchins and his productions we have the following notice in Allibone's Critical Dictionary of English Literature: Hutchins, Thomas, 1730-1789. Captain R[oyal] Army. Subsequently Geo-

grapher General of the United States; was a native of Monmouth, New Jersey. 1. Boquet's Expedition against the Ohio Indians. Philadelphia, 1765., London, 1766, 4to. pp. 14 and 71: 5 plates. Two of the plates are from designs by Benj. West. In French, Amsterdam, 1796. "The accounts here laid before the public appear to be perfectly authentic, and they are drawn up with equal perspicuity and elegance." Lond. Monthly Magazine. 2. A Topographical Dictionary of Virginia, Pennsylvania, Maryland and North Carolina. London, 1778, 8vo, pp. 67. 3 plates. In French, Paris, 1781. 3. Historical Narrative and Topographical Description of Louisiana and West Florida. Philadelphia, 1784, pp. 94, &c.

In the edition of 1813 the Preface or Advertisement varies slightly from that given above. It says: "The following Notes and Gazetteer were drawn up by David William Smith, Esq., late Surveyor General of the Province of Upper Canada, to illustrate the Map of that Colony, by the desire of Major-General Simcoe." It is then added: "This edition, the SECOND, has been revised and corrected to the present time by Francis Gore, Esq., Lieutenant-Governor, &c., &c., to accompany the NEW MAP compiled in the Surveyor General's office, and recently published under his direction." London, 1813. Many particulars relating to Governor Gore are narrated in "Toronto of Old." He was in England during the period of the war with the United States, 1812-14.

After the departure of Mr. D. W. Smith in 1802 the affairs of the Surveyor General's department were superintended for a time by Messrs. Chewett and Ridout conjointly. Then Mr. C. B. Wyatt became Surveyor General. Subsequently Mr. Ridout was appointed. During a portion of the incumbency of D. W. Smith, Mr. Christopher Robinson, formerly of the Province of Virginia, who had borne a commission in the corps of Queen's Rangers, was Deputy Surveyor General. The heading of the first edition, "A General Topographical Description of Upper Canada," is reduced in the second to "A Topographical Description," &c. The work then opens: "By an Act of the British Parliament, [commonly known as the Canadian Constitutional Act of 1791,] passed in the thirty-first year of His present Majesty, [*i. e.* George III.,] to repeal certain parts of an Act passed in the fourteenth year of His Majesty's reign, entitled, 'An Act for making more effectual provision for the Government of the Province of Quebec, in North America, and to make further provision for the

Government of the said Province;' the Province of Quebec was divided into the Provinces of Upper and Lower Canada, which two Provinces were separated according to the following line of division, as set forth in His Majesty's Proclamation of the 18th day of November, 1791, Alured Clarke, Esq.,* Lieutenant-Governor, &c., &c., &c.:' To commence at a stone boundary on the north bank of the Lake St. Francis, at the cove west of Pointe au Bodêt, [in Bouchette's Topographical Dictionary of Lower Canada, this is 'Baudet,'] in the limit between the township of Lancaster and the Seigneury of New Longueuil, running along the said limit in the direction of north 34 degrees west, to the westernmost angle of the said Seigneury of New Longueuil; thence along the north-western boundary of the Seigneury of Vaudreuil, running north 25 degrees east, until it strikes the Ottawa River; to ascend the said river into Lake Tomiscaming; and from the head of the said lake by a line drawn due north until it strikes the boundary line of Hudson's Bay, including all the territory to the westward and southward of the said line, to the utmost extent of the country commonly called or known by the name of Canada." [The old Longueuil is situated in the County of Chambly.]

The Province of Upper Canada is bounded to the eastward by the United States of America; that is, by a line from the 45th degree of north latitude, along the middle of the River Iroquois or Cataraqui, into Lake Ontario; through the middle thereof until it strikes the communication by water between that lake and Lake Erie; thence along the middle of the communication into Lake Erie; through the middle of that lake until it arrives at the water communication between it and Lake Superior; thence through Lake Superior northward, to the isles Royale and Philipeaux, to the Long Lake, and the water communication between it and the Lake of the Woods; thence through that lake to the most north-western point thereof; and from thence a due west line to the River Mississippi.

[Bouchette observes that "this boundary was fixed by the treaty of 1783, but is erroneous, inasmuch as a line drawn west from the Lake of the Woods will not strike the Mississippi at all." In President Russell's opening speech to the two houses of Parliament of

* A notice of Alured Clarke will be given hereafter; he was Lieutenant-Governor, acting in the absence of the Governor-in-Chief, Lord Dorchester.

Upper Canada, on the 15th of June, 1799, we have an allusion to the Mississippi as a westerly boundary of his Province. "Honorable Gentlemen and Gentlemen," he says, "I am happy to inform you that the intelligence communicated to me in the beginning of the winter, respecting a combined attack of this Province said to have been in preparation from the side of the Mississippi, turns out to have little or no foundation. It has, however," he then adds, "had the pleasing effect of evincing an internal strength to repel any hostile attempt from that quarter; for I cannot sufficiently applaud the very animated exertions of the Lieutenants of Counties and the loyal spirit and zeal exhibited by the Militia of the several districts on this occasion, whereby two thousand select volunteers from the respective corps thereof were immediately put into a state of readiness to march with their arms at a moment to wherever they might be ordered, and I am persuaded that the rest would have soon followed with equal alacrity if their services had been wanted." The military spirit of the young colony of Upper Canada was, we see, fated to be thus early put to the test. The reply to this part of the President's address from the "Commons" reads as follows: "It affords us the highest satisfaction to learn that the inhabitants of this Province have been so unanimously determined to oppose any attempt which might have been contemplated to disturb its flourishing improvements, not doubting that similar energy will be shewn by all classes of the people to prevent the introduction of French principles, and preserve uncontaminated the constitution which the mother country has given us." The Speaker of the Lower House on this occasion was David William Smith, of whom an account has been given above. President Russell, who, it may be observed, had been previously Military Secretary to Sir H. Clinton during the war of the Revolution in the United States, refers again to the expediency of being prepared for hostile attacks on Upper Canada, in the closing speech of the session of 1799. "Although," he says, "the sequestered situation of this Province has, through the favour of Providence, hitherto exempted it from sharing in the calamities of the cruel war which still ravages Europe, I cannot too earnestly exhort you to recommend it strongly to your constituents not to relax in their attentions to militia duties, and to keep that portion of each battalion which has been selected by my desire for immediate service in a constant state of readiness to act when wanted."]

To the westward and to the northward, west of the Mississippi, its boundaries are indefinite; the northern limits of Louisiana not being well known. [Of Louisiana, the North American and West Indian Gazetter of 1778 says: It stretches from N. to S. about 15 degrees, namely from lat. 25 to 40; and from E. to W., about 10 or 11 degrees; that is, from long. 86 to 96 or 97, for the limits are not precisely fixed. M. de Lisle, the Gazetteer then adds, gives it a much greater extent, especially on the north side, which he joins to Canada, so that part of it is bounded by New York, Pennsylvania, Virginia, &c., and on the west by the rivers Bravo and Salado. In the second edition (1813) of our Provincial Gazetteer, the paragraph in which Louisiana is named remains unchanged.]

To the northward, it is bounded by Hudson's Bay, as settled by the treaty of Utrecht [1713], in the 49th parallel of north latitude, extending due west, indefinitely.

Soon after his Excellency, John Graves Simcoe, Esq., the first Lieutenant-Governor, had taken upon him the administration of the Government of the Province, he divided it by proclamation into nineteen counties, viz:—1, Glengary; 2, Stormont; 3, Dundas; 4, Grenville; 5, Leeds; 6, Frontenac; 7, Ontario, consisting of the islands in the lake of that name; 8, Addington; 9, Lenox; 10, Prince Edward; 11, Hastings; 12, Northumberland; 13, Durham; 14, York, consisting of two Ridings; 15, Lincoln, consisting of four Ridings; 16, Norfolk; 17, Suffolk; 18, Essex; 19, Kent.

This last county comprehends all the country, not being territory of the American Indians and not included in the several other counties, extending northward to the boundary line of Hudson's Bay, including all the territory to the westward and southward of the said line, to the utmost extent of the country commonly known by the name of Canada.

These nineteen counties send sixteen representatives to the Provincial Parliament, who, with Legislative Council, are called together once every year. The representatives are elected for four years to serve in the Assembly, unless the Parliament be sooner dissolved by the person administering the Government.

[In the second edition (1813), instead of the above list of nineteen counties, the following table is given:—

DIVISION OF THE PROVINCE OF UPPER CANADA.

District.	County.	Township.
Eastern.	Glengary	Lancaster.
		Charlottenburgh.
		Kenyon.
		St. Regis Indians.
	Stormont	Cornwall.
		Osnabruck.
		Finch.
		Roxburgh.
	Dundas	Williamsburgh.
		Matilda.
		Mountain.
		Winchester.
	Prescott	Hawkesbury.
		Caledonia.
		Longueuil.
		Alfred.
		Plantagenet.
	Russell	Clarence.
		Cumberland.
		Gloucester.
		Osgoode.
		Russell.
		Cambridge.
Johnstown.	Grenville	Edwardsburgh.
		Augusta.
		Wolford.
		Oxford on the Rideau
		Marlborough.
		Montague.
		Gower, N. & S.
	Leeds	Elizabethtown.
		Yonge.
		Lansdown.
		Leeds.
		Crosby, N. & S.
		Bastard.
		Burgess.
		Elmsley.
		Kitley.
	Carleton	Nepean.
Midland.	Frontenac	Howe Island.
		Pittsburgh.
		Wolfe Island.
		Kingston.
Midland.—(*Continued.*)	Frontenac	Loughborough.
		Portland.
		Hitchinbroke.
		Bedford.
	Lenox and Addington	Ernest Town.
		Adolphus Town.
		Fredericksburgh.
		Richmond.
		Camden, East.
		Amherst Island.
		Sheffield.
	Hastings	Sydney.
		Thurlow.
		Mohawks.
		Hungerford.
		Huntington.
		Rawdon.
	Prince Edward	Ameliasburgh.
		Hallowell.
		Sophiasburgh.
		Marysburgh.
Newcastle.	Northumberland	Murray.
		Cramahe.
		Haldimand.
		Hamilton.
		Alnwick.
		Percy.
		Seymour.
	Durham	Hope.
		Clarke.
		Darlington.
Home.	East Riding of the County of York	Whitby.
		Pickering.
		Scarborough.
		York and Peninsula.
		Etobicoke.
		Markham.
		Vaughan.
		King.
		Whitchurch.
		Uxbridge.
		Gwillimbury, East.
		Do. West.
		Do. North.
		Scott.

District.	County.	Township.
Home.—(*Continued.*)	West Riding of the County of York	Toronto.
		Trafalgar.
		Nelson.
		Flamborough, East.
		Do. West.
		Beverley.
		Six Nation Lands, North of Dundas Street.
		Reserved Lands.
		Crown Lands and Church Lands.
London.	Norfolk ...	Rainham.
		Walpole.
		Woodhouse.
		Charlotteville.
		Walsingham.
		Houghton.
		Middleton.
		Windham.
		Townsend.
		Turkey Point and Promontory of Long Point.
	Oxford....	Burford, and Gore of Burford.
		Norwich.
		Dereham.
		Oxford on Thames.
		Blandford.
		Blenheim.
	Middlesex .	London.
		Westminster.
		Southwold.
		Dorchester.
		Yarmouth.
		Dunwich.
		Aldborough.
		Delaware.
		Malahide.
		Bayham.
Niagara.	Lincoln ...	Boston.
		Ancaster.
		Glanford.
		Saltfleet.
		Binbrook.
		Grimsby.
		Caistor
		Clinton.
		Louth.
		Grantham.
		Niagara
		Stamford.
		Thorold.
		Pelham.
		Gainsborough.
		Wainfleet.
		Crowland.
		Willoughby.
		Bertie.
		Humberstone.
	Haldimand.	Six Nation Land, south of Dundas Street.
Western.	Kent	Dover.
		Chatham.
		Camden, West
		Oxford.
		Harward.
		Harwich.
		Raleigh.
		Romney.
		Tilbury, E. & W.
		Shawanees.
	Essex.....	Mersea.
		Gosfield.
		Colchester.
		Malden.
		Sandwich and Town.
		Amherstburgh (Garrison).
		Maidstone.
		Rochester.

The counties send twenty-five representatives to the Provincial Parliament, &c.—Ed. 1813.]

Pointe au Bodêt is situated nearly half way on the north side of Lake St. Francis, which is about 25 miles long, and narrow throughout. The object of dividing the Province of Quebec at a stone boundary in the cove, west of this point, was apparently in order that the seignorial grants, under French tenure, should be

comprehended in the Province of Lower Canada, and that the new seigniories or townships, which were laid out for the loyalists, should be within the Province of Upper Canada; the said stone boundary being the limit between the uppermost French seigniory (M. De Longueuil's) on the River St. Lawrence, and the lower new seigniory of Lancaster, surveyed for the disbanded troops and loyalists; his Majesty having in the year 1788 signified his intention that they should be placed upon the same footing in all respects as the loyalists in Nova Scotia and New Brunswick, by having their lands granted to them in free and common soccage.

In passing from the Pointe au Bodêt, westward, through Lake St. Francis and up the River St. Lawrence, the route is generally made on the north shore. Lancaster is the first township fronting this lake: it extends nine miles, which is the ordinary size of the townships, and extending twelve miles back from the front. Lancaster is watered by three small rivers, one of which empties itself to the east, and another to the west of Pointe Mouillée, which projects into the lake towards the centre of the township.

The next township is Charlottenburg, well watered by the River aux Raisins, which, rising in the Township of Osnabruck, runs through that and the Township of Cornwall, and discharges itself into Lake St. Francis, at the south-east angle of Charlottenburg, eastward of Point Johnson. In front of this township are several small islands.

Between Charlottenburg and Cornwall is a small tract possessed by the Indians, who have a considerable village on the south shore, called St. Regis; and in this part of the St. Lawrence lie several islands, one called Petite Isle St. Regis, immediately opposite their village, and another, Grande Isle St. Regis, a little higher up, opposite the town of Cornwall.

In the rear of Charlottenburg is the township of Kenyon.

The township of Cornwall adjoins next; in the front is the town, of a mile square, lying in a commodious bay of the river, and watered by a small rivulet which runs through the town. Two branches of the River aux Raisins pass through the lands of this township; and in the front thereof are the Isles aux mille Roches et des Cheveaux Ecartées; Grande Isle St. Regis, lying in front of the town. In the rear of this township is the township of Roxburgh.

The township of Osnabruck lies above Cornwall; the River aux Raisins rises here in several branches; it has two other streams which run into the St. Lawrence in front, off which lies the Isle au Longue Sault, Isle de trois Cheveaux Ecartées, Isles au Diable, et Isle au Chat.

The Rapid, called the Long Sault, lies in front of this township; the boats, in going up, keep the north shore in great measure, because the south shore is not settled; but in descending, they universally pass between the islands and the south shore, that being the largest, deepest, and altogether the safest passage. The inhabitants of late years have taken down their grain with safety on rafts to the Montreal markets.

Many people think that the lumber trade is carried on with more safety down the rapids, than by those which pass Chambly from Lake Champlain; it being a frequent observation at Quebec, that the rafts from the Upper St. Lawrence are less ragged than those which come from Lake Champlain. There is, however, some little additional risk to the rafts from Upper Canada, by reason of having to pass the small Lakes St. Francis and St. Louis—all broad waters being more or less against the rafting trade. But as the Lake St. Pierre, which is larger than either St. Francis or St. Louis, must be passed, whether from Lake Champlain or the Upper St. Lawrence, there is no doubt but the lumber trade will find its way down the St. Lawrence. Some settlers have already made the attempt, even from the head of the Bay of Quinté; and when the produce of that very fertile country shall be exported for the Montreal or foreign markets, the raft will answer a double purpose; it requires but few hands to manage it; and grain or potash may be carried as dry as in any other way.

The township of Williamsburgh is next above Osnabruck; it has but few streams. There are some islands in its front; among the rest, Isle au rapid Plat, the west end of which lies also in front of Matilda, the next township. In the front is Point aux Pins and Point Iroquois; the latter of which has the advantage in a great measure of commanding the passage up and down the St. Lawrence. A few islands lie in the front of this township, and a peninsula, which is insulated at high water.

[Matilda is the next township above Williamsburgh: 2nd ed.]

Edwardsburgh is the next township; the front of which is Johnstown, of a mile square. This, with the town of Cornwall, has been most judiciously seated, the one being immediately above, the other below, the rapids of the Upper St. Lawrence, and of course easy of access from the Lake St. Francis below to Cornwall; and from Johnstown vessels may be navigated with safety to Queenstown above Niagara, and to all the ports of the Lake Ontario. In the front of this township is Pointe au Cardinal, Pointe au Gallop, Point Iurogne, and Pointe au Foin; and several islands, among which are Hospital Island and Isle du Fort Levy, where the French had a garrison, the ruins of which are still to be seen.

A little above Johnstown, on the south shore, is Fort Oswegatchie, situated on a river of that name.

Augusta lies above Edwardsburgh; it has but few streams; Pointe au Barril is in front.

The next township is Elizabeth Town, which is well watered by the River Tonianta and three other streams. The Isles du Barril lie in front of this township.

The township of Yonge lies next, and is of irregular shape. The River Tonianta empties itself into the St. Lawrence near the south-east angle of this township. Towards the upper part are the narrows made by a peninsula from the north shore, and Grenadier Island, which lies in front of this township, as do several smaller ones.

Landsdown is next; it has several small streams, and many islands in its front, but none of any size.

Leeds adjoins Landsdown, and is well watered by the River Gananoque, which affords a good harbour at its entrance.

Howe Island lies partly in front of this township, as do several small islands.

Pittsburgh lies above Leeds; part of Wolfe Island, and part of Howe Island are in its front. This township adjoins to Kingston; from hence westward, the St. Lawrence opens into the Lake Ontario, it being about 120 miles direct from Kingston to Pointe au Bodêt.

The St. Lawrence may be classed with the most noble rivers in the world; its waters flow for the extent of 2,000 miles before they reach the ocean; the commercial advantages from such a situation increase in proportion to the population of its banks. The Indian trade, in a great measure, takes its current down the St. Lawrence,

particularly since vessels of a considerable size are daily building for the navigation of the lakes.

The land in all the before-mentioned townships is for the most part fertile, and under as high a state of cultivation as can be expected from the time it has been settled; the first improvements being made since the peace of 1783, when all was in a state of nature and heavily timbered.

There are now between 30 and 40 mills [more than 40 mills: 2nd Ed.] in the extent mentioned, on this river, the most remarkable of which are on the Gananoque. Good roads have been opened, and bridges well constructed; some of them over wet lands and the mouths of creeks and rivers of very considerable extent; and the first settlers have been able, by their very great industry, to erect comfortable houses.

In the rear of these townships, on the St. Lawrence, are upwards of twenty others in which settlements have been commenced, to the southward of the Ottawa or Grand River, which many of them front; others are well supplied by the waters of the Rideau [wrongly printed Radeau, occasionally, in both editions] and River Petite Nation, with the Gananoque lakes and streams, all of which afford abundance of situations for mills. These rivers, like most others in Canada, abound in carp, sturgeon, perch and cat-fish; the ponds affording green and other turtle, with fish of various sorts. The lands in their vicinity are differently timbered according to their quality and situation. The dry lands, which are generally high, bear oak and hickory; the low grounds produce walnut, ash, poplar, cherry, sycamore, beech, maple, elm, &c., and in some places there are swamps full of cedar and cypress.

The banks of most of the creeks abound in fine pine timber, and the creeks themselves afford in general good seats for saw mills; materials for building are readily procured.

The heads of the Rivers Rideau and Petite Nation communicate by short portages or carrying places with the waters which fall into the St. Lawrence, and promise to afford great advantages to all kinds of inland communication. The forks of the Rideau, about which are the townships of Oxford, Marlborough and Gower, promise to be, at some future period, an emporium for interior commerce.

The birch canoes which go to the North-west country, pass up the Ottawa River with the merchandize, and descend with peltries.

The town of Kingston is situated at the head of the St. Lawrence on the north shore, opposite to Wolfe Island; it occupies the site of old Fort Frontenac, was laid out in the year 1784, and is now of considerable size; it has a barrack for troops and a house for the commanding officer, an hospital, several storehouses, an Episcopal Church, [a Roman Catholic Chapel,] a gaol and court house. A cove near to the town [upon which the town is situated: 2nd ed.] affords a good harbour for shipping; it is safe, commodious and well sheltered. Large vessels seldom go below Kingston, although it is navigable to Oswegatchie, about 70 miles down the river; the stores, provisions, &c., which are lodged in the depôt at this place, being usually transported there in boats from Montreal.

About Kingston there are several valuable quarries of limestone, and the country in general is rather stony, which is not found to be detrimental to the crops.

The township which surrounds this town bears the same name.

Ernest-town lies above Kingston; it is watered by two small rivers; Amherst Island lies in its front. In the rear of this township is Camden; the Appenee river, on which there are excellent mills, runs through it.

Having passed Ernest-town, the Bay of Quinté commences with Fredericksburgh to the north at its entrance, and Marysburgh to the south.

This bay, which may be considered throughout as a harbour, is formed by a large peninsula, consisting of the townships of Ameliasburgh, Sophiasburgh and Marysburgh, extending easterly from an isthmus, where there is a portage, at the head or west end of the bay, to Point Pleasant, the easternmost extremity of the peninsula, opposite to Amherst Island.

The River Trent empties itself into the head of the bay, to the eastward of the portage, and supplies it with the waters of the Rice lake. To the westward of the portage, in Lake Ontario, is the harbour of Presqu' Isle de Quinté, now called Newcastle.

This peninsula of the three townships, called the county of Prince Edward, extending from the mainland like an arm, hides from the Lake Ontario the townships of Sidney, Thurlow, Adolphustown and Fredericksburgh, which front the north side of the bay.

The River Trent, discharging itself between the townships of Murray and Sidney, finds its passage between the county of Prince

Edward and the townships on the north side of the bay; its stream is increased by the Appannee river running in from Camden, and dividing Richmond from Fredericksburgh, joins the waters of the bay near John's Island, a small isle opposite to a settlement of Mohawks, so called after Captain John, a Mohawk chief, who resides there, and who, with some others of that nation, had a tract of land given them by his Majesty, of about nine miles in front on the bay, and about twelve miles deep; preferring this situation, they separated from the rest of their nation, who were settled on the Grand River, or Ouse.

In Fredericksburgh and Adolphustown there are several fine bays and coves; and in the latter township there is a small town on the bay opposite to Marysburgh.

The River Shannon runs into the bay at the south-east angle of the township of Thurlow, and the Moira River at the south-west angle of that township.

There are several small coves and bays also in the peninsula of Prince Edward, and a small lake between Sophiasburgh and Marysburgh, which empties itself into a bay of Lake Ontario.

There is an island in the bay between Sophiasburgh and Thurlow, and between Killikokin Point and Point Oubesuoutegongs, of about seven miles long.

Isle de Quinté, now called Nicholas Island, lies off Ameliasburgh in Lake Ontario; and off Point Traverse in Marysburgh are the Duck Islands. In the deep bay between Point Traverse and Point Pleasant are Orphan Island and Isle du Chêne.

The River Trent, which falls into the head of the Bay of Quinté, not only leads off the waters of the Rice lake, but of a chain of lakes between it and Lake Simcoe; a few miles up the river, on the south side, are salt springs.

The fertility of the soil about the Bay of Quinté is generally allowed: the land is rich, easily worked, and produces several crops without manure; twenty-five bushels of wheat are often produced from one acre; the timber is much like that of the other parts of the Province—oak, elm, hickory, maple, &c. The bay is narrow throughout, and upwards of fifty miles long, all which distance it is navigable for those small vessels that are used on the lakes.

An apparent tide is frequently noticed in the Bay of Quinté, not dissimilar to those observed in some of the upper lakes. [Merely

the rise and fall occasioned now and then by the prevalence or absence of certain winds.] The bay abounds with wild fowl and fish of various kinds; the River Trent affords a salmon fishery.

In passing from the head of the Bay of Quinté into Lake Ontario, you cross a very short portage in front of the township of Murray, being the isthmus between it and the peninsula of Prince Edward; at the end of the portage, and before you enter Lake Ontario, is a small lake, exceedingly beautiful, and the land on its banks extremely good; to the northward of this portage it is proposed to make a canal, to connect the waters of the bay with those of the lake. The circumstance of two small streams rising near each other, and running different ways, seems to point out the facility of the measure. The cut, which Campbell (in his "Notes on the Political Survey of Great Britain") calls Earl Gower's canal, seems to be well suited to this country, where labour bears so high a price, and where the rooting up of immense trees is so great a difficulty to encounter.

[John Campbell, LL.D., 1708-1775, a voluminous Historical, Biographical and Political writer. The allusion is probably to the second Earl Gower who, in 1786, became Marquis of Stafford.]

A little to the westward of the portage and proposed canal, is the harbour of Newcastle, a situation well suited for commerce and protection, and sheltered from all winds; a knoll on the peninsula affords a healthy site for the town.

After leaving Murray, in going to the westward along the shore of Lake Ontario, you pass the townships of Cramahé, Haldimand and Hamilton, which are now settling; and arriving at the township of Hope, you find excellent mills; from thence there is a portage to the Rice Lake.

You then pass by the fronts of Clarke, Darlington, and Whitby; and coming to Pickering, you meet with an excellent salmon and sturgeon fishery, at a river called Duffin's Creek, which is generally open, and large enough to receive boats at most seasons of the year.

After leaving the township of Pickering, you pass under the high lands of Scarborough, and arrive at the township of York.

All the townships on the north side of the lake are well watered by small streams, at the mouths of which are ponds, and low land capable of being drained and converted into meadows. In the rear of the township of Murray is the township of Seymour; in the rear of Cramahé is Percy in the rear of Haldimand is Alnwick; and in

the rear of Hamilton is Dives. [The last eight words are omitted in 2nd edition.]

The river Nen empties itself into Lake Ontario, in the township of Pickering, east of the Scarborough heights; it runs from a considerable distance in the country through Scarborough, Markham, &c., crossing the Yonge Street, and apparently rising in the vicinity of one of the branches of Holland's River, with which it will probably, at some future period, be connected by a canal. This river abounds with fish; at its embouchure are good intervals for meadow ground, and it is the back communication from the German settlement in Markham to Lake Ontario.

York, which is at present the seat of Government of Upper Canada, lies in about 43 degrees and 35 minutes north latitude, and is most beautifully situated within an excellent harbour of the same name, made by a long peninsula, which embraces a basin of water sufficiently large to contain a considerable fleet. It has this advantage over the other ports on Lake Ontario, that vessels may ride safely at its entrance during the winter.

On the extremity of the peninsula, which is called Gibraltar Point, are commodious stores and block-houses, which command the entrance to the harbour; on the mainland, opposite to the Point, is the garrison, situated on a point made by the harbour and a small rivulet, which, being improved by sluices, affords an easy access for boats to go up to the stores; [the last seventeen words are omitted in the 2nd edition.] The barracks, being built on a knoll, are well situated for health, and command a delightful prospect of the lake to the west, and of the harbour to the east. The Government House, which is not yet finished, is about two miles above the garrison, near the head of the harbour, and the town is increasing very rapidly. [In the 2nd edition, the preceding sentence reads thus :—"The Government House is about two miles from the east end of the town, at the entrance of the harbour, and the town is increasing very rapidly." The Government House referred to in the 2nd edition was situated in the Fort. It was destroyed by the concussion occasioned by the blowing up of the powder-magazine, when York was taken by the United States force in 1813.] The front of the city, as now laid out, is a mile and a half in length; several handsome squares are projected, particularly one open to the harbour. The River Don empties itself into the harbour a little above the town, running through a marsh, which,

when drained, will afford beautiful and fertile meadows; this has already been effected in a small degree, which will no doubt encourage further attempts. The long beach or peninsula, which affords a most delightful ride, is considered so healthy by the Indians, that they resort to it whenever indisposed; and so soon as the bridge over the Don is finished, it will of course be generally resorted to, [in 2nd edition: the bridge over the Don, being finished, is frequented] not only for pleasure, but as the most convenient road to the heights of Scarborough.

The ground which has been prepared for the Government House is situated between the city and the River Don, in a beautiful spot, and its vicinity well suited for gardens and a park. [By "Government House" is here meant the first Parliament Buildings, which were afterwards burnt by the enemy in 1813.] The oaks are large, the soil excellent, and watered by various streams; the harbour is well calculated for ship-building and launching of vessels. The Yonge Street, or military way, leading to Lake Simcoe, and from thence to Gloucester on Lake Huron, commences in the rear of the city. This great communication has been opened to Gwillimbury, 32 miles; and must be the great channel to the North-West, as it is considerably shorter than the circuitous route by the Straits of Niagara and Detroit. [In the 2nd edition, the following sentence is inserted here:—The tract of land between Kempenfeldt and Penetanguishene Bays has been lately purchased from the Indians, and a road is opening, which will enable the North-West Company to transport their furs from Lake Huron to York, thereby avoiding the circuitous route of Lake Erie, and the inconvenience of passing along the American frontier. We add in a note below the official document attesting the purchase at Penetanguishene.*] Farm lots of

* Upper Canada.—To all to whom these Presents may come, Greeting. Whereas the Chiefs, Warriors and People of the Chippeway Tribe or Nation of Indians, being desirous, for certain considerations hereinafter shewn, of selling and disposing of a certain tract of Land lying near the Lake Huron, or butting and bounding thereon, called the Harbour of Penetanguishene, to His Britannic Majesty King George the Third, our Great Father, Now know ye that we the Chiefs, Warriors and People of the Chippeway Tribe or Nation, for and in consideration of One Hundred and One Pounds, Quebec currency, to us paid, or in Value given, the receipt whereof we hereby acknowledge, to have given, granted, sold, disposed of, and confirmed, and by these presents do give, grant, sell, dispose of and confirm for ever, unto His Britannic Majesty King George the Third, all that tract or space containing land and water, or parcel of ground covered with water, be the same land or water, or both, lying and being near or upon the Lake Huron, called Penetanguishene, butted and bounded as follows:—Beginning at the Head or south-westernmost angle of a Bay, situated above certain French ruins, now lying on the East side of a small Strait leading from the said Bay into a larger Bay called Gloucester or

200 acres are laid out on each side of Yonge Street, having a width of a quarter of a mile each, on the street; in general, the land is excellent, and fit for every purpose of husbandry.

Sturgeon Bay, the Head or south-westernmost angle of the said Bay being called by the Indians Opetiquayawsing; then North 70 degrees West to a Bay of Lake Huron, called by the Indians Nottoway Sagué Bay; thence following the shores of Lake Huron according to the different courses and windings of the said Nottoway Sagué Bay; Penetanguishene Harbour and Gloucester or Sturgeon Bay, sometimes called also Matchadash, to the place of beginning, containing all the lands to the northward of the said line, running North 70 degrees West, and lying between it and the waters of Lake Huron, together with the Islands in the said Harbour of Penetanguishene. To have and to hold the said parcel or tract of land, together with all the woods and waters thereon lying and being, unto His said Britannic Majesty King George the Third, his heirs and successors for ever, free and clear of all claims, rights, privileges and emoluments which we the said Chiefs, Warriors and People of the said Chippeway Tribe or Nation might have before the execution of these Presents, and free and clear of any pretended Claims, rights, privileges or emoluments to which our Children, Descendants and Posterity may hereafter make to the same. Hereby renouncing and forever absolving ourselves, and our children, descendants and posterity, of all title to the soil, woods and waters of the above described parcel or tract of land in favour of His said Britannic Majesty, his heirs and successors forever. In Witness whereof we have, for ourselves and the rest of our Tribe or Nation, hereto set our marks, seals and signatures, this twenty-second day of May, and in the Thirty-eighth year of the Reign of our Great Father, King George the Third, at York, in the Province aforesaid, having first heard this Instrument openly read and rehearsed in our own language, and fully approved by ourselves and our Nation. Signed, William Claus, Superintendent Indian Affairs, on behalf of the Crown, (L.S.); Chabondasheam, (L.S.) [figure of a Reindeer]; Aasance, (L.S.) [figure of an Otter]; Wabininquon, (L.S) [figure of a Pike]; Ningawson, (L.S.) [figure of a Reindeer]; Omassanahsqutawah, (L.S.) [figure of a Reindeer.] In the presence of William Willcocks, Commissioner on behalf of the Province; Alexander Burns, Commissioner on behalf of the Province; Samuel Smith, Major Q. Rangers; Arthur Holdsworth Brooking, Lieut. Q. Rangers; John McGill, Adjutant Q. Rangers; J. Givins, Agent of Indians; W. Johnson Chew, Indian Department; George Cown, Indian Department. To this Instrument was annexed a plan of the Lands and Harbour purchased, and schedule of the goods given as an equivalent for the same.

"We do hereby certify that the following Goods were delivered in our presence to the Chippeway Nation, subscribers to the within Deed, being the consideration therein mentioned, as sent from the general Store by order of the Commander-in-Chief:—Twenty pair Blankets of 2½ Points, 16s. 6d.—£16 10s. Twenty-five pair Blankets of 2 Points, 12s.—£15. Seventeen pair Blankets of 1½ Points, 9s. 9d.—£8 5s. 9d. Four pieces Blue Strouds, eighty-four yards, 117s. a Piece—£23 8s. Forty-four Pounds Brass Kettle, 2s. 4½d.—£5 4s. 6d. Four Pieces Calico, 18½ yards each is seventy-four yards, 55s. 6d. per piece—£11 2s. Three Pieces Linen, 25 yards each is seventy-five yards, 75s. per piece—£11 5s. Three Pieces Calimanco, 30 yards, is ninety yards, 54s. 9d. per piece—£8 4s. 3d. Nine dozen Butchers' Knives at 4s. 6d. per dozen—£2 0s. 6d. Amounting in the whole to One Hundred and One Pounds, Quebec currency. Signed, William Willcocks," &c.

(To be continued.)

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—MAY, 1873.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	ME'N.	Excess of Mean above Normal	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Relative Humidity 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN.	Rain in inches.	Snow in inches.
1	29.842	29.706	29.534	29.6787	44.5	57.8	48.8	51.33	+ 4.48	.182	.141	.153	.158	61	29	43	42	N	E	E	N 78 E	2.4	11.0	9.0	5.96	6.73	0.480	...
2	.409	.331	.313	.3437	48.1	43.0	39.8	41.95	— 5.23	.259	.164	.225	.213	77	59	92	80	E	E	N E	N 63 E	17.0	17.2	11.2	14.63	14.92	.020	...
3	.284	.395	.580	.4353	39.8	47.0	38.7	42.02	— 5.53	.206	.182	.193	.221	84	88	82	82	N E	S E	N W	N 40 E	11.6	6.6	9.0	4.72	7.64	Inap.	...
4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	S W	S 50 W	2.2	9.8	0.6	3.44	5.02	Inap.	...
5	.697	.792	.849	.7853	45.2	54.6	47.0	49.48	+ 1.32	.209	.233	.232	.226	69	54	72	64	N	S	N	N 60 W	9.6	9.5	5.8	1.76	6.62	...	...
6	.948	.996	.951	.9720	46.3	52.4	44.8	47.90	— 0.75	.204	.182	.131	.171	64	46	44	51	E	E	N E	N 78 E	9.6	13.1	10.0	9.05	9.00	...	...
7	.946	.860	.772	.8503	46.7	54.6	46.7	49.68	+ 0.70	.153	.193	.181	.178	48	44	56	50	N E	E	E	N 79 E	12.6	18.8	17.6	14.87	15.11	Inap.	...
8	.752	.722	.668	.7018	44.5	42.0	42.0	42.77	— 6.57	.261	.251	.251	.257	90	94	94	93	E	E	E	N 81 E	4.0	18.2	18.0	15.57	15.58	.900	...
9	.634	.558	.451	.5427	40.9	47.0	47.0	45.22	— 4.47	.248	.273	.273	.265	96	85	85	88	E	E	E	N 84 E	15.9	20.0	17.0	17.23	17.26	.035	...
10	.370	.577	.593	.5128	46.7	56.4	50.3	50.88	+ 0.83	.296	.305	.269	.286	93	67	73	78	S E	W	N W	S 66 W	8.5	11.5	6.0	2.83	9.13	.130	...
11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	W	N 72 W	5.6	3.0	4.5	2.40	5.75	.020	...
12	.467	.365	.190	.3305	43.0	58.2	47.0	50.37	— 0.35	.219	.348	.249	.280	79	72	77	76	W	S	S W	S 45 W	6.0	13.6	6.2	6.08	7.68	.190	...
13	.122	.393	.497	.3578	44.1	47.7	38.0	42.32	— 8.78	.233	.158	.128	.170	80	47	56	63	N W	N W	W	N 55 W	18.4	24.7	7.6	16.46	16.99	.090	...
14	.552	.481	.511	.5088	34.7	50.6	42.0	43.15	— 8.28	.154	.216	.214	.202	77	59	80	72	N W	S W	N	N 74 W	10.7	9.2	10.4	5.34	8.76	...	...
15	.521	.492	.506	.5070	40.5	53.1	47.7	48.68	— 3.10	.170	.296	.204	.219	67	73	61	63	N	S W	N	N 26 W	13.9	6.4	13.4	7.79	10.45	...	...
16	.583	.591	.633	.6082	45.9	60.4	48.1	52.07	— 0.07	.200	.198	.181	.194	64	37	53	51	N	N W	N W	N 27 W	4.0	18.4	15.5	10.71	12.72	...	...
17	.709	.701	.747	.7205	44.8	58.2	47.7	51.27	— 1.22	.233	.324	.204	.259	78	67	62	68	N W	N W	N	N 24 W	11.0	15.0	12.8	12.91	13.03	...	...
18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	W	N	N 31 W	7.6	7.0	7.0	5.19	7.25	...	...
19	.704	.656	.660	.6720	49.9	62.9	52.8	55.97	+ 2.80	.216	.231	.177	.207	60	39	44	46	N	S E	E	N 66 E	3.8	5.0	4.2	1.93	4.22	...	...
20	.705	.684	.645	.6707	49.2	51.3	49.9	51.27	— 2.27	.213	.298	.255	.258	61	79	71	68	E	E	S E	N 85 E	12.6	10.6	5.2	9.45	9.63	...	...
21	.618	.619	.609	.6167	49.9	60.7	53.1	54.33	+ 0.47	.295	.363	.348	.338	82	68	86	80	E	E	S E	S 79 E	7.0	5.5	1.2	4.73	4.83	..	...
22	.603	.588	.504	.5563	50.6	62.5	56.0	56.68	+ 2.48	.285	.398	.400	.364	76	70	89	79	E	E	Calm.	S 81 E	1.0	9.4	0.0	2.72	2.77	...	...
23	.442	.303	.282	.3382	54.2	68.6	64.7	63.42	+ 8.87	.335	.498	.536	.469	80	71	88	80	S E	S	W	S 29 W	1.6	9.7	5.2	4.92	6.29	...	...
24	.350	.380	.444	.4065	59.6	71.9	58.9	63.88	+ 8.98	.369	.430	.349	.393	71	61	70	66	W	N W	N W	N 58 W	15.8	19.5	3.5	11.17	11.81	...	...
25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S E	Calm.	S 45 E	3.3	5.0	0.0	0.87	2.30	...	...
26	.634	.542	.486	.5440	56.0	67.6	59.3	61.38	+ 5.52	.333	.442	.465	.423	74	65	92	77	E	E	Calm	N 79 E	8.3	12.6	0.0	5.33	5.49	Inap.	...
27	.429	.360	.291	.3512	55.7	73.0	61.4	64.67	+ 8.77	.442	.581	.488	.513	99	72	89	84	Calm.	S W	S W	S 36 W	0.0	12.6	10.2	6.02	6.17	.030	...
28	.330	.419	.564	.4497	65.0	71.2	59.3	64.15	+ 7.95	.518	.489	.379	.452	84	64	75	75	S W	S W	N W	S 80 W	6.2	7.0	12.2	8.15	9.50	..	...
29	.667	.561	.730	.6662	55.0	65.8	49.5	55.90	— 0.65	.357	.467	.321	.371	82	73	90	82	N W	E	N	N 10 W	1.6	12.0	13.5	4.13	7.90	.310	...
30	.882	.933	.992	.9430	42.0	50.6	45.9	46.88	— 9.98	.197	.235	.220	.212	73	64	57	64	N	S W	N	N 3 W	14.6	7.1	6.8	4.98	8.93	...	...
31	30.087	30.033	29.954	30.0177	46.7	60.0	50.6	53.87	— 3.30	.227	.238	.265	.245	70	49	72	59	S E	S	S W	S 15 W	1.4	9.6	5.2	3.58	5.23	...	...
	29.6032	29.5940	29.5910	29.5958	47.76	57.3	49.52	51.91	— 0.18	.260	.308	.270	.279	76	63	72	70	.....	.....	.....	.....	8.32	11.57	8.03	.....	8.88	2.205	.....

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M, and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.091 at 8 a.m. on 30th. } Monthly range
Lowest Barometer .....29.122 at 6 a.m. on 13th. } 0.969.

Self-registering Ther.
- Maximum temperature.....76.4 on 27th. } Monthly range
- Minimun temperature..... 30.0 on 14th. } 46°4
- Mean maximum temperature.....61°07 } Mean daily range
- Mean minimum temperature.....42°22 } 18°85
- Greatest daily range.....29°0 from a.m. to p.m. of 4th.
- Least daily range..... 6°8 from a m. to p.m. of 8th.

Warmest day.....27th; mean temperature 64°67 } Difference=22°72
Coldest day..... 2nd; mean temperature 41°95 }

Maximum { Solar .....130°2 on 24th. } Difference=112°2
Radiation { Terrestrial ..... 18°0 on 14th. }

Aurora observed on 8 nights, viz: 16th, 17th, 18th, 21st, 22nd, 23rd, 27th and 29th.

Possible to see aurora on 20 nights; impossible on 11.

Raining on 13 days; depth, 2.205 inches; duration of fall, 62.2 hours.

Mean of cloudiness, 0.55.

WIND.

Resultant direction, N. 26 E.; Resultant velocity, 2.69 miles.

Mean velocity, 8.88 miles per hour.

Maximum velocity, 28.0 miles, from noon to 1 p.m. of 13th.

Most windy day, 8th; mean velocity, 17.26 miles per hour.

Least windy day, 25th; mean velocity, 2.30 miles per hour.

Most windy hour, 3 p.m.; mean velocity, 11.94 miles per hour.

Least windy hour, 2 a.m.; mean velocity, 5.97 miles per hour.

Solar haloes on 1st, 9th and 15th.

Lunar haloes on 6th and 13th.

Lightning on 12th, 20th, 22nd, 23rd, 26th and 27th.

Thunder on 12th and 23rd.

Fog on 25th. Dew on 16th, 22nd, 23rd and 31st.

Ice on 12th and 14th.

Hour frost on 30th.

COMPARATIVE TABLE FOR MAY.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity.	Mean Velocity.
	°	°	°	°	°					°		
1845	49.6	— 2.0	77.8	27.8	50.0	8	2.300	0	0.0	...	...	0.55 lbs.
1846	55.5	+ 3.9	79.7	33.1	46.6	9	4.375	0	0.0	...	...	0.46
1847	54.4	+ 2.8	72.1	26.7	45.4	12	2.040	0	0.0	...	...	0.29
1848	54.1	+ 2.5	78.0	31.3	46.7	13	2.520	0	0.0	N 40 W	1.31	4.93mls.
1849	48.0	— 3.6	72.2	27.9	44.3	16	5.115	0	0.0	N 51 E	1.97	5.33
1850	47.6	— 4.0	77.8	27.5	50.3	7	0.545	1	Inap.	N 64 W	2.05	6.32
1851	51.3	— 0.3	73.3	28.0	45.3	12	2.950	1	0.5	N 32 W	1.59	6.34
1852	51.4	— 0.2	73.3	32.0	41.3	7	1.125	1	Inap.	N 82 W	0.99	4.00
1853	50.9	— 0.7	78.4	32.2	46.2	17	4.420	1	Inap.	N 2 W	0.83	5.16
1854	52.2	+ 0.6	71.4	25.2	46.2	11	4.630	0	0.0	E	0.40	5.38
1855	53.1	+ 1.5	77.5	33.0	44.5	6	2.565	2	0.9	N 1 W	2.76	5.93
1856	50.5	— 1.1	82.2	31.2	51.0	14	4.580	1	Inap.	N 4 E	3.99	9.81
1857	48.9	— 2.7	74.8	26.0	48.8	15	4.145	1	Inap.	N 23 W	1.14	8.13
1858	48.9	— 2.7	69.8	31.0	38.8	17	6.367	0	0.0	N 42 E	3.33	9.30
1859	55.2	+ 3.6	79.6	39.5	40.1	11	3.410	0	0.0	N 72 E	1.59	5.70
1860	55.5	+ 3.9	74.5	32.5	42.0	16	1.815	0	0.0	N 26 E	2.66	7.17
1861	47.5	— 4.1	73.0	28.0	45.0	12	3.380	1	0.5	N 47 W	3.60	9.17
1862	52.2	+ 0.6	78.5	32.4	46.1	8	1.427	0	0.0	N 52 W	2.80	7.87
1863	54.3	+ 2.7	79.0	36.4	42.6	14	3.363	1	0.1	N 56 E	0.41	5.89
1864	54.8	+ 3.2	79.0	32.2	46.8	18	4.070	0	0.0	N 7 W	1.86	5.64
1865	52.3	+ 0.7	79.0	30.0	49.0	11	4.005	0	0.0	N 3 W	1.65	5.48
1866	48.3	— 3.3	73.4	33.4	40.0	13	2.820	0	0.0	N 46 W	4.49	9.26
1867	46.5	— 5.1	65.0	24.6	40.4	18	3.220	1	Inap.	N 51 W	3.55	8.40
1868	51.8	+ 0.2	73.0	33.2	39.8	16	7.670	0	0.0	N 38 E	3.16	6.87
1869	50.8	— 0.8	74.2	31.4	42.8	16	2.805	1	Inap.	N 20 W	2.38	6.55
1870	56.3	+ 4.7	81.2	38.8	42.4	10	1.150	0	0.0	N 23 E	1.09	5.48
1871	54.2	+ 2.6	85.0	32.4	52.6	7	2.302	0	0.0	N 23 W	2.53	7.70
1872	51.9	+ 0.3	78.8	32.0	46.8	14	1.934	0	0.0	N 52 W	2.25	6.49
1873	51.9	+ 0.3	76.4	30.0	46.4	13	3.205	0	0.0	...	...	...
Res'lts to 1872	51.64	.....	76.12	31.06	45.06	11.94	3.214	0.36	0.07	N 14 W	1.64	6.73
Excess for '73.	+ 0.26	.....	+ 0.28	— 1.06	+ 1.34	+ 1.06	— 1.009	— 0.36	— 0.07	...	...	— 0.24

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JUNE, 1873.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN		
					°	°	°	°	°																			
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NW	SW	Calm.	S 48 W	5.4	10.6	0.0	3.77	4.75	...	...
2	29.898	29.919	29.817	29.8732	55.0	57.1	53.5	57.00	— 0.80	.324	.243	.248	.304	75	52	60	64	NE	E	E	S 84 E	0.5	8.6	2.2	4.08	5.32	...	...
3	.745	.640	.483	.6053	54.2	64.7	53.5	58.08	— 0.05	.228	.357	.322	.315	54	58	79	65	NE	E	Calm.	S 85 E	7.6	10.6	0.0	5.23	5.46	...	...
4	.374	.276	.283	.3087	57.8	71.9	57.5	62.82	+ 4.35	.364	.582	.429	.472	76	74	91	82	E	W	N	N 75 W	0.4	11.0	1.0	2.89	4.42	0.100	...
5	.279	.305	.348	.3165	58.6	76.6	62.2	66.80	+ 5.03	.342	.458	.440	.424	69	50	78	66	NW	W	SW	N 75 W	15.0	15.6	0.4	6.88	8.44	.060	...
6	.377	.390	.549	.4552	58.9	69.4	57.5	62.05	+ 2.97	.421	.541	.281	.380	85	75	59	68	NW	S	NW	N 38 W	0.4	2.0	13.0	6.37	8.83	.025	...
7	.708	.737	.822	.7655	53.1	67.2	57.8	59.62	+ 0.22	.294	.300	.376	.331	73	54	79	67	N	S	NE	N 13 W	10.0	9.6	8.4	6.19	8.76	...	...
8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	NE	S 84 E	8.4	4.7	5.0	1.47	5.13	...	...
9	.813	.717	.613	.7005	59.3	66.5	57.8	61.68	+ 1.65	.321	.345	.309	.327	64	53	64	60	E	E	NE	N 85 E	5.0	8.8	4.8	4.23	5.53	...	...
10	.529	.402	.414	.4395	57.8	60.7	65.4	61.97	+ 1.60	.365	.435	.501	.444	76	82	80	79	E	SE	NW	N 30 E	4.8	3.0	15.2	1.17	4.28	.065	...
11	.570	.666	.762	.6780	59.3	69.7	53.2	60.73	+ 0.03	.428	.377	.282	.351	85	51	69	66	NW	N	N	N 33 W	16.6	21.6	8.6	13.35	14.14	...	...
12	.875	.855	.828	.8522	53.9	63.6	50.3	57.25	+ 3.75	.293	.322	.239	.273	70	55	65	59	N	SW	S	N 14 W	9.0	7.8	0.2	1.49	6.82	...	...
13	.785	.661	.539	.6485	51.0	58.9	54.6	56.77	— 4.57	.290	.350	.341	.337	77	70	80	73	NE	E	Calm.	East.	3.4	8.3	0.0	4.30	5.42	...	...
14	.472	.414	.408	.4225	57.1	66.1	58.6	61.92	+ 0.25	.397	.437	.449	.424	86	68	92	78	E	E	N	S 87 E	6.2	7.6	3.0	4.11	4.52	.060	...
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	S	Calm.	S 22 W	0.0	3.8	0.0	1.00	1.29	...	...
16	.460	.369	.500	.4463	62.2	77.7	61.8	68.55	+ 6.25	.440	.621	.433	.509	79	65	78	73	W	S	Calm.	N 34 W	0.6	4.0	0.0	1.61	3.85	...	...
17	.622	.645	.612	.6290	59.3	64.0	57.8	61.20	— 1.40	.394	.379	.353	.378	78	64	74	70	N	S	NW	N 28 E	6.0	3.1	2.2	1.55	5.95	...	...
18	.558	.387	.323	.4085	56.4	76.6	63.2	65.88	+ 2.97	.305	.458	.426	.396	67	49	73	62	W	S	Calm.	S 28 W	1.2	11.4	0.0	2.24	4.40	...	...
19	.338	.268	.258	.2805	66.1	82.7	79.5	75.68	+12.47	.491	.616	.867	.644	77	55	86	72	Calm.	SW	N	S 51 W	0.0	17.8	5.2	5.19	6.01	...	...
20	.376	.455	.542	.4783	65.4	74.1	63.2	66.92	+ 3.40	.359	.318	.282	.306	57	37	48	46	W	NW	W	N 64 W	10.2	33.8	5.8	15.50	15.53	...	...
21	.608	.524	.586	.5723	59.3	79.5	66.5	68.95	+ 5.15	.311	.313	.284	.304	61	30	43	45	NW	NW	N	N 50 W	8.0	21.0	4.4	7.49	9.10	Inap.	...
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	E	E	NE	N 82 E	5.8	8.7	6.2	6.00	6.15	Inap.	...
23	.717	.722	.655	.6968	58.6	63.2	60.4	60.68	— 3.70	.330	.451	.513	.432	67	78	98	81	E	E	E	N 83 E	8.4	10.4	9.4	10.51	10.56	.130	...
24	.624	.735	.813	.7307	60.4	65.4	61.1	63.02	— 1.60	.513	.539	.454	.511	98	86	84	89	E	E	E	N 81 E	5.5	11.0	6.2	5.57	5.74	.070	...
25	.882	.919	.889	.8995	57.5	67.9	59.6	62.45	— 2.45	.384	.413	.390	.399	87	60	76	72	E	E	E	N 83 E	9.4	14.5	5.5	9.54	9.64	...	...
26	.915	.839	.758	.8223	61.4	68.6	60.4	63.42	— 1.72	.367	.391	.400	.389	67	56	76	67	E	SE	Calm.	S 67 E	5.2	9.4	0.0	4.23	4.62	...	...
27	.660	.499	.443	.5195	60.7	80.2	71.5	71.88	+ 6.50	.410	.702	.631	.591	77	68	82	75	SE	S	N	S 27 W	2.7	12.0	0.4	4.11	5.05	...	...
28	.448	.424	.403	.4230	67.9	77.7	68.3	71.17	+ 5.52	.520	.669	.542	.573	76	71	79	75	N	S	N	N 29 E	8.8	7.8	5.6	1.82	5.37	...	...
29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	S	E	S 50 E	0.0	6.4	3.8	1.63	3.64	...	...
30	.202	.159	.245	.2055	62.5	71.5	65.1	66.02	— 0.10	.553	.675	.585	.600	98	88	94	94	E	SW	SW	S 4 E	4.0	3.4	4.2	2.06	4.33	.170	...
	29.5934	29.5571	29.5557	29.5671	58.95	69.66	60.81	63.70	+ 1.69	.378	.452	.415	.417	75	63	75	70	.....	.....	.....	.....	5.62	10.28	4.02	...	6.43	.680	...

REMARKS ON TORONTO METOROLOGICAL REGISTER FOR JUNE, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 A.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....29.956 at 7 a.m. on 1st. } Monthly range
Lowest Barometer.....29.159 at 2 p.m. on 30th. } 0.797.

Self-registering Ther.
- Maximum Temperature .....89°5 on 19th. } Monthly range 49.5.
- Minimum Temperature.....40°0 on 1st. }
- Mean Maximum Temperature .....73°66. } Mean daily range 21°28.
- Mean Minimum Temperature .....52°38. }
- Greatest daily range.....32°7 from p.m. of 4th to a.m. of 5th.
- Least daily range..... 8°0 from a.m. to p.m. of 23rd.

Warmest day .....19th ...Mean Temperature .....75.68 } Difference=18°91.
Coldest day.....13th....Mean Temperature .....56.77 }

Maximum Radiation
- Solar .....144°4 on 19th. } Monthly range 115.4.
- Terrestrial .....29°0 on 1st. }

Aurora observed on 11 nights, viz.: 1st, 14th, 15th, 16th, 18th, 20th, 24th, 25th, 26th, 27th and 29th.

Possible to see Aurora on 24 nights; impossible on 6 nights.

Raining on 10 days; depth 0.680 inches; duration of fall 24.2 hours.

Mean of Cloudiness, 0.46.

WIND.

Resultant Direction N. 18° E.; Resultant Velocity 1.00 miles.

Mean Velocity 6.43 miles per hour.

Maximum Velocity 33.8 miles, from 2 to 3 p.m. of 20th.

Most Windy day 20th; Mean Velocity 15.53 miles per hour.

Least Windy day 15th; Mean Velocity 1.29 miles per hour.

Most Windy hour 2 p.m.; Mean Velocity 10.28 miles per hour.

Least Windy hour 4 a.m.; Mean Velocity 3.49 miles per hour.

Lightning and Thunder on 4th, 10th, 14th, 16th, 28th, 29th and 30th.

Solar haloes on 9th.

It will be seen from the comparative table that this month is the driest June recorded except June, 1864.

COMPARATIVE TABLE FOR JUNE.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1845	61.0	— 0.7	84.6	38.5	46.1	11	3.715	...	...	...	...	0.27 lbs
1846	63.3	+ 1.6	84.2	39.1	45.1	0	1.920	...	...	...	...	0.32
1847	58.4	— 3.3	77.8	36.7	41.1	14	2.625	...	...	...	...	0.30
1848	62.9	+ 1.2	92.0	37.4	54.6	8	1.810	...	...	N 61 W	1.90	4.51mls
1849	63.2	+ 1.5	84.4	35.2	49.2	7	2.020	...	...	S 71 E	0.49	3.32
1850	64.3	+ 2.6	85.6	34.2	51.4	10	3.345	...	...	S 60 W	0.38	4.54
1851	59.2	— 2.5	79.2	37.0	42.2	11	2.695	...	...	S 2 W	1.26	4.42
1852	60.8	— 0.9	86.1	37.2	48.9	10	3.160	...	...	S 76 W	1.49	4.09
1853	65.5	+ 3.8	89.5	39.2	50.3	9	1.550	...	...	N 1 W	0.10	3.73
1854	64.1	+ 2.4	92.5	35.2	57.3	9	1.460	...	...	N 24 E	0.71	4.15
1855	59.9	— 1.8	91.5	36.2	55.3	17	4.070	...	...	N 69 W	1.33	5.70
1856	62.1	+ 0.4	89.2	42.0	47.2	13	3.200	...	...	S 21 W	0.90	5.30
1857	56.9	— 4.8	76.0	35.0	41.0	21	5.060	...	...	N 49 W	1.15	7.60
1858	66.2	+ 4.5	90.2	42.5	47.7	12	2.943	...	...	S 20 E	0.25	5.53
1859	58.3	— 3.4	86.4	32.2	54.2	16	4.085	2	Inap.	N 77 E	1.95	7.19
1860	63.2	+ 1.5	81.6	49.2	32.4	14	2.136	...	...	N 44 W	3.13	7.61
1861	61.3	— 0.4	87.8	41.6	46.2	13	2.329	...	...	N 39 W	2.29	6.11
1862	60.5	— 1.2	85.4	39.4	46.0	10	1.007	...	...	N 26 W	1.77	5.98
1863	60.1	— 1.6	84.8	37.4	47.4	13	1.662	...	...	N 50 W	2.26	5.24
1864	63.0	+ 1.3	93.4	34.8	58.6	5	0.570	...	...	N 55 W	1.72	4.53
1865	64.5	+ 2.8	90.2	43.0	47.2	7	2.005	...	...	S 30 W	0.60	4.06
1866	60.2	— 1.5	90.5	40.0	50.5	15	2.720	...	...	S 15 W	0.71	5.09
1867	64.3	+ 2.6	88.6	44.0	44.6	8	0.885	...	...	S 84 E	0.48	4.13
1868	62.0	+ 0.3	84.2	38.0	46.2	11	2.217	...	...	N 16 E	0.85	5.26
1869	58.4	— 3.3	81.4	36.4	45.0	22	4.378	...	...	N 80 W	1.77	5.23
1870	67.3	+ 5.6	88.4	50.0	38.4	16	8.090	...	...	N 17 E	0.40	5.14
1871	61.4	— 0.3	83.0	41.8	41.2	13	3.340	...	...	N 80 W	2.04	6.57
1872	63.7	+ 2.0	88.0	41.8	46.2	8	3.148	...	...	N 69 W	0.76	3.80
1873	63.7	+ 2.0	89.5	40.0	49.5	10	0.680	...	...	N 18 E	1.00	6.43
Res'lts to 1872.	61.68	...	86.30	39.11	47.19	11.79	2.983	...	..	N 64 W	0.83	5.15
Excess for '73.	+ 2.02	...	+ 3.20	+ 0.89	+ 2.31	— 1.79	— 2.303	...	..	..	..	+ 1.28

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—JULY, 1873.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal.	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Result't.	Velocity of the Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.357	29.435	29.533	29.4458	65.0°	79.1°	68.6°	72.23°	+ 5.92°	.532	.589	.580	.570	86	59	83	73	S W	S W	N W	S 50° W	0.6	8.6	6.4	5.01	5.91	...	...
2	.567	.567	.495	.5423	67.2	72.3	67.9	70.02	+ 3.52	.631	.680	.590	.641	95	85	86	87	N E	S E	S	S 41 E	2.4	3.8	2.0	2.16	3.65	0.085	...
3	.539	.536	.526	.5338	70.1	79.8	67.6	72.15	+ 5.45	.606	.609	.594	.600	82	60	87	77	S W	S W	Calm.	S 71 W	7.2	11.0	0.0	7.31	7.88	...	...
4	.537	.519	.428	.4933	69.7	82.0	69.4	73.82	+ 6.93	[illegible]	.710	.644	.656	86	65	90	79	S W	S	S W	S 26 W	2.4	10.4	1.8	5.55	5.77	...	...
5	.423	.428	.584	.4845	65.8	83.4	61.1	70.10	+ 3.03	.589	.413	.243	.408	92	36	45	56	S W	W	N W	N 68 W	2.6	22.0	13.0	11.44	12.56	...	...
6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	S	N 30 W	10.8	7.4	0.6	2.36	7.43	Inap	...
7	.671	.601	.545	.5980	55.7	74.1	60.4	64.63	— 2.73	.348	.371	.402	.384	78	44	77	65	N W	S	N W	S 12 W	1.6	9.4	3.6	3.41	4.63	...	...
8	.555	.537	.610	.5668	60.7	70.1	61.1	64.63	— 2.90	.422	.476	.356	.412	80	64	66	68	N	S	N	N 46 W	2.6	7.2	12.0	2.38	6.32	...	...
9	.675	.685	.641	.6645	60.4	72.6	58.9	65.03	— 2.63	[illegible]	.392	.385	.366	66	48	77	60	N	S	Calm.	S 67 E	9.4	9.4	0.0	0.95	6.28	...	...
10	.591	.575	.626	.6003	58.2	58.2	56.0	57.95	— 9.83	.360	.455	.400	.419	74	94	89	87	N	N	Calm.	N 9 W	2.0	8.6	0.0	3.21	3.55	.250	...
11	.677	.709	.761	.7253	56.0	68.7	58.9	61.02	— 6.88	.333	.427	.284	.346	73	60	57	63	N	S	N	N 55 W	2.0	10.6	10.2	3.19	6.80	...	...
12	.851	.813	.763	.8035	56.0	70.5	58.9	62.32	— 5.68	.334	.354	.385	.358	73	47	77	64	N E	S E	E	N 85 E	2.2	9.2	4.4	4.47	6.73	...	...
13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	Calm.	S 80 E	0.8	9.2	0.0	3.47	4.43	...	...
14	.641	.567	.599	.5995	70.8	75.9	67.2	71.92	+ 3.73	.669	.777	.612	.679	88	87	92	86	S W	S W	S W	S 36 W	0.4	7.2	1.4	4.42	4.49	.120	...
15	.641	.653	.641	.6488	70.5	83.1	70.1	74.97	+ 6.72	.683	.432	.334	.478	92	38	45	56	W	N	N	N 26 W	5.0	12.5	10.4	8.23	9.15	...	...
16	.733	.681	.559	.6440	66.5	66.5	64.0	65.95	— 2.33	.382	.382	.391	.390	58	58	65	61	E	E	E	N 82 E	9.6	6.0	2.4	5.67	6.87	...	...
17	.441	.241	.279	.3008	60.7	82.4	69.7	70.82	+ 2.47	.509	.841	.727	.689	96	76	100	91	N E	S W	W	S 15 E	1.4	15.4	2.6	2.07	6.02	.875	...
18	.335	.308	.336	.3295	69.4	78.8	66.5	70.47	+ 2.08	.639	.705	.622	.654	96	72	95	88	W	S	Calm.	S 28 W	1.8	14.4	0.0	3.94	4.19	.290	...
19	.404	.471	.551	.4838	62.5	65.0	55.0	61.13	— 7.28	.472	.389	.357	.403	83	63	82	75	W	W	W	N 86 W	1.8	22.2	3.0	10.48	10.75	...	...
20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	W	N W	N 65 W	7.8	16.3	1.6	9.52	9.79	...	...
21	.660	.669	.719	.6868	59.6	73.7	63.6	65.83	— 2.63	.412	.456	.391	.427	81	55	67	68	Calm.	S	N W	S 54 W	0.0	10.8	3.2	3.34	4.86	...	...
22	.814	.801	.786	.7995	57.8	77.0	63.2	66.78	— 1.68	.377	.513	.438	.443	78	55	75	68	N W	S W	S W	S 41 W	2.0	16.4	3.4	4.93	5.82	...	...
23	.767	.691	.659	.7010	62.5	86.0	67.6	72.82	+ 4.37	.472	.526	.579	.513	83	43	77	66	S W	S W	S W	S 50 W	3.6	12.6	2.4	5.35	5.67	...	...
24	.683	.627	.583	.6243	69.4	80.2	69.0	72.98	+ 4.53	.583	.484	.413	.483	81	47	59	60	W	S	N	S 57 W	3.3	7.4	3.8	1.58	4.17	...	...
25	.468	.353	.494	.4387	61.8	75.9	65.4	68.58	+ 0.17	.445	.511	.512	.501	81	57	82	73	N E	S W	N	S 50 W	2.5	18.6	4.8	4.10	7.02	.205	...
26	.512	.536	.600	.5522	64.0	72.6	68.3	68.48	+ 0.12	.558	.573	.441	.533	94	71	69	77	N	S	N	S 6 E	1.4	5.8	8.4	0.59	3.66	.080	...
27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	S	N	N 37 E	0.2	6.0	5.2	0.63	4.19	Inap.	...
28	.751	.649	.549	.6408	60.4	75.1	65.8	68.43	+ 0.13	.402	.553	.562	.531	77	64	89	77	N	E	S E	N 74 E	2.0	12.0	0.7	6.06	6.99	Inap	...
29	.495	.487	.585	.5262	66.1	77.3	68.3	71.90	+ 3.67	.627	.644	.534	.584	98	69	78	77	S E	S W	N	S 57 W	0.7	14.2	2.2	3.01	6.15	...	...
30	.682	.695	.709	.6932	65.0	80.6	66.5	71.13	+ 2.93	.494	.553	.510	.527	80	53	84	70	N W	S	S E	S 12 W	4.8	10.0	3.0	1.73	5.12	...	...
31	.720	.665	.534	.6262	62.9	79.3	68.3	69.73	+ 1.62	.442	.544	.570	.566	77	66	86	77	S E	E	N E	S 85 E	1.5	5.2	0.8	2.29	2.55	Inap	...
	29.5996	29.5740	29.5817	29.5835	63.51	75.34	64.71	68.36	+ 0.45	.495	.532	.471	.502	83	61	77	72	.....	.....	.....	.....	3.21	10.96	3.65	...	6.11	1.913	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....29.865 at 8 a.m. on 12th } Monthly range=
Lowest Barometer .....29.170 at 4 p.m. on 17th } 0.695.

Self-registering Ther.
- Maximum temperature.....87°5 on 23rd } Monthly range=
- Minimum temperature .....47°5 on 11th } 40°0
- Mean maximum temperature.....77°66 } Mean daily range=
- Mean minimum temperature.....58°02 } 19°64.
- Greatest daily range.....31°5 from a.m. to p.m. of 23rd.
- Least daily range ..... 8°5 from a.m. to p.m. of 2nd.

Warmest day..... 4th; mean temperature.....73°82 } Difference=15°87.
Coldest day.....10th; mean temperature.....57°95 }

Maximum Radiation { Solar.....149°4 on 4th } Monthy range=
{ Terrestrial ..... 36°0 on 7th } 113°4.

Aurora observed on 10 nights, viz:—2nd, 12th, 15th 16th, 20th, 21st, 22nd, 23rd, 29th and 30th.

Possible to see Aurora on 22 nights; impossible on 9 nights.

Raining on 11 days; depth, 1.913 inches; duration of fall, 29.3 hours.

Mean of Cloudiness, 0.55.

WIND.

Resultant direction, S. 75° W.; resultant velocity, 1.71.

Mean velocity, 6.11 miles per hour.

Maximum velocity, 27.3 miles, from 4 to 5 p.m. of 5th.

Most windy day, 5th; mean velocity, 12.56 miles per hour.

Least windy day, 31st; mean velocity, 2.55 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 10.96 miles per hour.

Least windy hour, 5 a.m.; mean velocity, 8.46 miles per hour.

Fog on 4th, 18th, 21st and 29th.

Thunder or Lightning on 1st, 3rd, 13th, 17th, 24th and 25th.

Rainbows on 17th and 18th.

COMPARATIVE TABLE FOR JULY.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of Days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity	Mean Velocity.
	°	°	°	°	°					°	°	
1845	66.2	— 1.2	95.0	45.7	49.3	7	2.195	...	...	...	...	0.30 lbs.
1846	68.0	+ 0.6	94.6	44.5	50.1	9	2.895	...	...	...	...	0.29
1847	68.0	+ 0.6	87.0	43.2	43.8	18	3.355	...	...	...	...	0.19
1848	65.5	— 1.9	82.2	44.1	38.1	10	1.890	...	...	N 14 W	0.18	4.94 mls.
1849	68.4	+ 1.0	88.6	45.2	43.4	4	3.415	...	...	S 5 W	0.75	3.52
1850	68.9	+ 1.5	86.2	51.6	34.6	12	5.270	...	...	N 81 E	0.59	4.56
1851	65.0	— 2.4	82.7	46.5	36.2	12	3.625	...	...	N 60 W	0.88	4.13
1852	66.8	— 0.6	90.1	48.5	41.6	8	4.025	...	...	N 43 W	0.93	3.33
1853	65.6	— 1.8	91.3	41.6	49.7	10	0.915	...	...	S 58 E	0.24	3.69
1854	72.5	+ 5.1	98.0	42.5	55.5	9	4.805	...	...	S 49 W	0.37	4.03
1855	67.9	+ 0.5	92.8	49.2	43.6	13	3.245	...	...	S 19 W	0.73	6.47
1856	69.9	+ 2.5	96.6	49.5	47.1	8	1.120	...	...	N 79 W	1.57	5.84
1857	67.8	+ 0.4	86.6	47.0	39.6	15	3.475	...	...	S 68 E	0.81	4.74
1858	67.9	+ 0.5	85.0	52.0	33.0	13	3.072	...	...	N 15 E	1.13	5.76
1859	66.9	— 0.5	88.0	44.7	43.3	12	2.611	...	...	N 56 W	1.48	5.81
1860	63.9	— 3.5	88.0	43.8	44.2	13	4.356	...	...	N 60 W	2.15	7.29
1861	65.4	— 2.0	84.5	47.0	37.5	16	2.635	...	...	N 74 W	1.43	4.66
1862	66.7	— 0.7	95.5	48.2	47.3	15	5.344	...	...	S 89 W	1.42	5.80
1863	67.6	+ 0.2	83.5	48.0	35.5	15	3.408	...	...	N 18 W	0.40	3.89
1864	69.7	+ 2.3	90.2	49.0	41.2	8	1.332	...	...	N 61 W	2.23	6.00
1865	65.0	— 2.4	83.0	45.8	37.2	11	2.470	...	...	N 86 W	2.28	5.34
1866	70.4	+ 3.0	94.0	47.8	46.2	16	5.390	...	...	S 7 W	0.94	4.17
1867	68.2	+ 0.8	94.0	48.2	45.8	12	1.965	...	...	N 48 W	1.40	5.45
1868	75.8	+ 8.4	93.4	59.0	34.4	5	0.510	...	...	S 7 E	0.72	4.66
1869	64.5	— 2.9	84.9	49.8	35.1	13	4.610	...	...	S 67 W	2.01	5.07
1870	68.8	+ 1.4	87.4	48.0	39.4	16	1.896	...	...	S 78 W	1.59	4.82
1871	66.0	— 1.4	88.4	47.8	40.6	11	1.255	...	...	N 88 W	1.55	5.67
1872	70.2	+ 2.8	96.0	52.2	43.8	13	2.297	...	...	N 67 W	1.19	3.56
1873	68.4	+ 1.0	87.5	47.5	40.0	11	1.913	...	...	S 75 W	1.71	6.11
Res'lts to 1872.	67.38	...	89.55	47.51	42.04	10.73	3.220	...	...	N 76 W	0.79	4.93
Excess for 1873	+ 0.98	...	+ 2.05	— 0.01	— 2.04	+ 0.27	— 1.307	...	...	...	...	+ 1.18

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—AUGUST, 1873.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal.	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Re-sult't	MEAN		
1	29.469	29.560	29.582	29.5370	67.2°	78.4°	67.6°	72.57°	+ 4.50	.631	.583	.626	.631	95	60	92	80	S	N W	S W	N 63° W	3.2	9.0	0.7	3.19	5.31	0.090	...
2	.547	.466	.461	.4842	66.5	75.2	67.6	70.42	+ 2.40	.566	.574	.594	.643	87	83	88	86	S	S	Calm.	S 17 W	3.3	6.4	0.0	2.05	3.92	.240	...
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	N W	N W	N 35 W	2.0	10.2	5.0	6.14	8.69	...	...
4	.814	.870	.909	.8730	59.3	70.8	61.1	64.45	— 3.40	.405	.415	.320	.389	80	55	59	64	N	S W	N	N 22 W	6.2	8.8	6.4	2.12	6.63	...	...
5	.981	.936	.885	.9343	58.6	72.6	57.8	64.10	— 3.65	.330	.431	.309	.338	67	53	64	57	N	S	Calm.	S 46 W	5.0	8.8	0.0	0.74	4.98	...	...
6	.859	.745	.657	.7475	56.4	78.4	67.6	69.02	+ 1.35	.382	.537	.498	.489	84	56	74	70	Calm.	S	S W	S 16 W	0.0	14.4	2.4	4.58	5.63	...	...
7	.615	.567	.556	.5718	65.4	77.0	70.5	70.72	+ 3.17	.581	.718	.539	.598	93	77	72	79	N W	S	N	N 74 W	1.0	2.8	5.0	1.16	3.24	.140	...
8	.594	.594	.627	.6060	64.7	74.4	64.7	68.53	+ 1.10	.536	.447	.334	.454	88	52	54	65	N	S	N	N 12 E	6.6	7.5	5.6	1.66	6.08	...	...
9	.717	.717	.743	.7258	62.2	73.3	64.3	67.05	— 0.28	.307	.489	.436	.425	54	60	72	64	N	S	N	N 42 W	2.8	8.2	5.0	0.63	5.65	...	...
10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	Calm.	S 53 E	4.4	12.2	0.0	2.52	6.12	...	...
11	.709	.656	.635	.6640	61.1	65.4	63.2	64.13	— 2.92	.442	.514	.451	.468	82	82	78	78	E	E	N E	N 84 E	3.5	8.6	6.0	5.40	6.23	.015	...
12	.657	.640	.659	.6577	59.6	71.5	63.6	64.50	— 2.40	.437	.541	.512	.508	86	72	87	84	N	S E	N	N 59 E	3.8	13.6	6.6	3.90	5.58	.138	...
13	.682	.749	.777	.7358	62.5	65.4	61.1	63.18	— 3.57	.460	.488	.442	.464	81	78	82	80	E	E	E	N 81 E	11.5	17.5	4.5	10.44	10.99	.065	...
14	.718	.659	.635	.6648	60.0	73.7	64.3	67.38	+ 0.80	.432	.483	.528	.484	84	58	88	74	N E	E	E	N 82 E	7.8	10.2	6.0	6.36	7.83	...	...
15	.577	.501	.435	.4945	62.9	69.0	61.1	63.97	— 2.47	.505	.500	.442	.498	88	79	82	83	E	S E	Calm.	S 66 E	2.0	5.5	0.0	2.94	3.58	.030	...
16	.338	.428	.677	.4898	64.3	68.6	53.5	61.78	— 4.47	.582	.414	.366	.450	96	59	89	81	S	N W	W	N 66 W	4.5	26.6	1.4	9.47	10.57	.045	...
17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	E	E	S 55 E	1.2	5.2	1.0	1.41	2.83	...	...
18	.715	.674	.646	.6753	57.8	67.2	62.2	62.77	— 3.15	.354	.503	.488	.450	74	76	87	79	N E	N E	N E	N 67 E	5.8	15.4	2.4	7.08	7.48	.080	...
19	.663	.671	.675	.6737	58.6	73.3	62.9	65.37	— 0.32	.474	.577	.548	.547	96	70	95	87	N	S E	E	S 37 E	0.2	8.2	1.2	2.67	3.75	...	...
20	.707	.677	.694	.6933	61.1	76.6	66.5	68.32	+ 2.82	.516	.591	.499	.545	96	65	76	79	E	S E	Calm.	S 43 E	1.4	8.0	0.0	3.63	4.20	...	...
21	.705	.679	.661	.6762	61.8	74.8	68.6	69.37	+ 4.08	.487	.615	.580	.579	87	71	83	80	Calm.	S E	N W	S 78 E	0.0	10.6	3.0	2.67	3.56	...	...
22	.652	.657	.667	.6570	65.1	82.7	74.1	74.73	+ 9.68	.585	.554	.534	.543	94	49	63	65	N	S	N	S 75 W	0.8	8.0	6.8	0.80	4.10	...	...
23	.755	.843	.891	.8413	67.2	71.9	59.3	65.77	+ 0.92	.570	.413	.279	.412	86	53	54	64	N	N	N E	N 8 E	8.5	11.4	7.4	7.56	8.08	.240	...
24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	S	S W	S 68 E	7.5	6.0	3.0	1.48	5.20	...	...
25	.612	.519	.526	.5432	56.4	66.1	60.7	61.55	— 2.80	.360	.479	.497	.455	79	74	93	83	N E	S	Calm.	S 31 E	3.2	3.4	0.0	2.00	2.37	.320	...
26	.537	.571	.638	.5873	60.7	69.4	61.8	64.47	+ 0.37	.471	.514	.445	.480	89	71	80	79	N W	S	E	S 89 E	4.8	5.5	2.6	1.92	5.35	...	...
27	.709	.731	.748	.7212	58.2	66.8	61.4	63.10	— 0.73	.409	.452	.412	.430	84	69	76	75	N E	E	N E	N 83 E	6.2	12.2	5.0	6.13	6.56	...	...
28	.780	.824	.843	.8163	62.9	75.9	63.6	67.25	+ 3.68	.521	.542	.537	.534	91	60	91	81	E	S E	E	S 75 E	4.4	7.6	1.8	4.35	5.10	...	...
29	.872	.814	.755	.8085	56.0	72.6	61.8	65.17	+ 1.87	.426	.505	.495	.496	94	63	89	80	Calm.	S E	Calm.	S 32 E	0.0	6.0	0.0	3.20	3.71	...	...
30	.763	.717	.656	.7077	60.7	81.6	71.5	71.70	+ 8.63	.447	.667	.601	.579	84	62	78	74	Calm.	S W	W	S 40 W	0.0	12.0	2.6	4.42	5.38	...	...
31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	S E	E	S 74 E	0.5	7.0	3.8	2.84	3.75	.510	...
	29.6826	29.6717	29.6784	29.6768	61.43	72.79	63.94	66.59	+ 0.63	.470	.529	.474	.496	85	66	79	76	.....	.....	.....	.....	3.62	9.57	3.07	.....	5.56	1.913	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer .....29.997 at 8 a.m. on 5th } Monthly range
Lowest Barometer ....29.338 at 6 a.m. on 16th } 0.659.

Self-registering Ther.
- Maximum Temperature .....85°0 on 22nd } Monthly range 38°6.
- Minimum Temperature .....46°4 on 24th
- Mean Maximum Temperature .....75°52 } Mean daily range 17°98.
- Mean Minimum Temperature .....57°54
- Greatest daily range.....28°8 from a.m. to p.m. of 6th.
- Least daily range ..... 5°6 from a.m. to p.m. of 31st.

Warmest Day.....22nd; Mean Temperature.....74°73 } Difference=13°18.
Coldest Day .....25th; Mean Temperature.....61°55

Maximum Radiation
- Solar .....143°0 on 22nd } Monthly range 107°6.
- Terrestrial ..... 35°4 on 17th

Aurora observed on 4 nights, viz., 8th, 16th, 17th and 23rd.

Possible to see Aurora on 24 nights; impossible on 7 nights.

Raining on 12 days; depth 1.913 inches; duration of fall 28.1 hours.

Mean of Cloudiness, 0.48.

WIND.

Resultant Direction N 84° E.; Resultant Velocity 1.35 miles.

Mean Velocity 5.56 miles per hour.

Maximum Velocity 27.4 miles, from 1 to 2 p.m. of 16th.

Most Windy day 13th; Mean Velocity 10.99 miles per hour.

Least Windy day 25th; Mean Velocity 2.37 miles per hour.

Most Windy hour 2 p.m.; Mean Velocity 9.57 miles per hour.

Least Windy hour 4 a.m.; Mean Velocity 3.07 miles per hour.

Dew on 8 mornings.

Fog on the 19th.

Lightning on 7th, 11th, 12th, 21st, 22nd, 23rd and 30th.

Thunder on 11th, 21st, 22nd and 23rd.

COMPARATIVE TABLE FOR AUGUST.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity.
	°	°	°	°	°					°		
1845	67.9	+ 1.7	84.8	41.5	44.3	9	1.725	...	...	...	...	0.19 lbs
1846	68.4	+ 2.2	86.4	49.5	36.9	9	1.770	...	...	...	...	0.17
1847	65.1	— 1.1	82.6	44.6	38.0	10	2.140	...	...	...	...	0.19
1848	69.2	+ 3.0	87.0	48.7	38.3	8	0.835	...	...	S 21 E	0.98	4.55 mls
1849	66.3	+ 0.1	79.0	49.0	30.0	10	4.970	...	...	N 71 W	0.60	3.76
1850	66.8	+ 0.6	85.0	41.0	44.0	13	4.355	...	...	N 15 E	0.35	4.46
1851	63.6	— 2.6	79.8	42.0	37.8	10	1.360	...	...	N 63 W	0.40	4.63
1852	65.9	— 0.3	81.2	45.8	35.4	9	2.695	...	...	N 70 E	0.56	3.30
1853	68.6	+ 2.4	94.9	42.5	52.4	11	2.575	...	...	S 36 E	0.30	4.26
1854	68.0	+ 1.8	99.2	45.6	53.6	5	0.455	...	...	N 64 W	1.76	4.60
1855	64.1	— 2.1	83.5	40.0	43.5	7	1.455	...	...	N 63 W	1.04	6.97
1856	63.6	— 2.6	82.7	41.5	41.2	12	1.680	...	...	N 50 W	2.88	7.03
1857	65.3	— 0.9	88.2	46.0	42.2	13	5.265	...	...	N 77 W	1.51	6.36
1858	67.6	+ 1.4	84.0	44.0	40.0	11	3.890	...	...	N 69 W	1.57	6.50
1859	66.6	+ 0.4	82.2	45.8	36.4	11	3.900	...	...	N 36 W	1.62	5.96
1860	64.5	— 1.7	87.0	46.8	40.2	14	3.405	...	...	N 70 W	1.83	5.80
1861	65.5	— 0.7	85.2	47.0	38.2	15	2.955	...	...	N 8 E	0.46	4.21
1862	67.6	+ 1.4	89.5	42.8	46.7	15	3.483	...	...	N 78 W	1.67	5.96
1863	66.6	+ 0.4	88.0	42.4	45.6	12	2.208	...	...	S 61 W	1.80	4.89
1864	68.6	+ 2.4	94.0	47.0	47.0	16	5.060	...	...	N 70 W	1.38	4.75
1865	65.2	— 1.0	87.8	44.4	43.4	8	1.990	...	...	N 60 W	1.55	5.07
1866	60.8	— 5.4	77.0	42.4	34.6	14	4.457	...	...	N 59 W	2.58	5.16
1867	68.1	+ 1.9	95.2	42.2	53.0	10	2.440	...	...	N 76 W	1.25	4.52
1868	67.2	+ 1.0	84.4	46.8	37.6	13	1.562	...	...	S 58 W	1.01	6.15
1869	63.6	— 2.6	89.0	43.5	45.5	11	4.275	...	...	N 42 W	1.98	5.13
1870	67.1	+ 0.9	84.0	40.0	44.0	14	3.422	...	...	N 75 W	1.80	5.92
1871	67.4	+ 1.2	89.5	46.0	43.5	8	2.800	...	...	N 52 W	1.09	6.86
1872	69.5	+ 3.3	91.8	51.0	40.8	19	2.405	...	...	N 51 W	1.43	3.73
1873	66.6	+ 0.4	85.0	46.4	38.6	12	1.913	...	...	...	...	5.56
Results to 1872.	66.19	...	86.53	44.64	41.89	11.07	3.002	...	...	N 66 W	1.11	5.22
Excess for '73.	+ 0.40	...	— 1.53	+ 1.76	— 3.29	+ 0.93	— 1.089	...	...	...	...	+ 0.34

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—SEPTEMBER, 1873.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	MEAN	Excess of Mean above Normal	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN.	Rain in inches.	Snow in inches.
1	29.212	29.403	29.524	29.3930	67.2°	73.3°	58.6°	66.97°	+ 4.42°	.645	.341	.366	.437	97	41	74	67	W	N W	W	N 6° W	6.2	28.0	7.0	14.21	15.87	...	...
2	.566	.559	.614	.5992	54.6	73.3	58.9	63.30	+ 1.05	.362	.422	.372	.364	85	51	75	65	W	N W	N W	N 69 W	12.7	24.2	3.8	12.60	12.83	...	...
3	.705	·617	.502	.6075	53.5	68.3	65.0	63.30	+ 1.32	.366	.489	.519	.472	89	70	84	81	Calm.	S E	S W	S 46 E	0.0	9.5	4.6	2.16	4.50	0.070	...
4	.351	.222	.248	.2708	64.0	73.3	72.3	69.75	+ 8.07	.586	.727	.544	.613	98	89	69	85	S E	S W	W	S 26 W	5.0	16.0	5.0	6.38	8.18	.270	...
5	.355	.541	.759	.5777	65.8	68.3	56.4	62.75	+ 1.37	.522	.383	.338	.392	82	55	74	69	W	W	N	N 71 W	13.0	22.4	6.5	13.44	14.83	...	...
6	.945	.948	.914	.9333	46.3	58.4	51.3	52.40	− 8.65	.263	.301	.236	.259	84	61	62	65	N	S	N	N 15 E	7.4	6.0	6.6	3.04	6.70	...	...
7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	N W	N W	N 5 W	3.4	3.0	2.4	2.15	2.43	.190	...
8	30.004	30.025	.999	30.0 62	46.3	62.9	50.3	54.37	− 5.98	.302	.357	.290	.321	96	62	79	77	N W	S	W	S 42 W	4.2	11.0	4.8	1.95	5.82	...	...
9	30.006	29.957	.889	29.9415	47.0	64.3	54.2	56.62	− 3.37	.292	.350	.389	.340	91	58	92	76	N W	S E	E	S 52 E	2.4	8.2	6.2	2.21	4.39	...	...
10	29.827	.741	.707	.7507	55.3	67.9	58.2	60.53	+ 0.93	.386	.506	.468	.449	88	74	96	86	N E	S E	E	S 74 E	3.6	7.4	3.4	3.73	5.19	...	...
11	.713	.661	.616	.6577	53.5	74.1	61.8	63.92	+ 4.72	.355	.595	.445	.462	87	71	80	77	E	S E	Calm.	S 44 E	2.4	8.8	0.0	2.96	3.75	...	...
12	.560	.420	.308	.4097	57.1	78.4	67.9	68.90	+10.08	.458	.583	.621	.567	98	60	91	82	S W	S	S W	S 19 W	1.2	18.4	6.0	6.90	7.02	.040	...
13	.354	.562	.674	.5497	56.4	51.0	45.2	50.32	− 8.10	.360	.240	.237	.272	79	64	78	74	N W	N W	N W	N 44 W	13.2	18.6	14.6	14.29	15.71	.310	...
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	S W	N	N 35 W	5.8	7.2	5.8	5.37	6.29	...	...
15	.750	.551	.493	.5880	33.7	53.1	51.3	46.08	−10.63	.175	.306	.342	.286	90	76	90	86	N	S	S W	S 31 W	1.0	8.3	2.8	3.13	4.66	.170	...
16	.591	.728	.850	.7370	49.9	58.5	42.0	50.43	− 6.78	.316	.213	.214	.243	88	44	80	69	N W	N W	Calm.	N 56 W	10.1	17.6	0.0	11.09	11.39	...	...
17	.849	.826	.702	.7785	39.4	55.0	54.6	51.47	− 5.32	.193	.324	.352	.297	80	75	82	77	N	E	E	N 81 E	6.6	7.0	7.2	4.08	5.96	.010	...
18	.545	.426	.359	.4348	56.4	73.5	66.1	66.20	+ 9.83	.433	.546	.518	.501	95	66	81	78	E	S W	S W	S 21 W	1.6	14.3	3.5	4.98	6.52	...	...
19	.386	.414	.468	.4265	48.1	55.7	47.7	49.97	− 5.97	.309	.250	.233	.259	91	55	70	73	N W	W	W	N 51 W	15.5	11.5	8.8	11.86	12.98	.400	...
20	.525	.637	.798	.6668	40.5	52.4	39.8	44.83	−10.72	.208	.202	.196	.208	82	51	80	71	W	N W	W	N 50 W	3.0	24.6	0.6	11.74	12.22	...	...
21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	E	S 6 E	0.6	6.6	1.6	1.44	3.44	...	...
22	.838	.760	.600	.7182	44.9	54.6	51.7	51.42	− 3.27	.281	.341	.357	.339	94	79	93	89	N E	S E	N E	N 67 E	3.6	4.6	3.2	3.17	3.79	.200	...
23	.597	.602	.641	.6143	48.8	58.2	50.3	52.38	− 1.88	.310	.360	.311	.319	90	74	85	81	N	S W	Calm.	N 61 W	0.0	7.8	0.0	2.17	4.35	.060	...
24	.634	.614	.540	.5928	46.6	61.4	57.1	55.83	+ 2.00	.298	.367	.351	.333	94	67	75	75	N	S E	E	S 70 E	1.5	7.7	11.8	3.06	3.42	.240	...
25	.400	.350	.580	.4553	57.1	66.1	53.5	58.00	+ 4.58	.446	.437	.299	.373	95	68	72	77	S E	S W	W	S 39 W	9.6	14.6	3.2	6.58	9.25	...	...
26	.774	.735	.675	.7268	46.6	62.9	58.9	56.22	+ 3.23	.269	.357	.399	.337	85	62	80	74	W	S E	E	S 57 E	1.8	4.9	2.6	2.46	3.73	...	...
27	.691	.665	.685	.6890	56.8	74.1	64.7	67.37	+14.77	.450	.640	.576	.587	98	76	94	88	S E	S W	W	S 23 W	0.8	8.8	4.4	4.15	5.21	.450	...
28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	S W	S W	S 27 W	0.0	13.0	3.4	4.49	4.90	.500	...
29	.228	.336	.649	.4275	66.1	59.6	49.2	57.77	+ 6.02	.585	.389	.294	.409	91	76	84	83	S W	N W	W	N 85 W	11.5	29.0	3.8	10.38	13.46	.110	...
30	.763	.768	.749	.7612	43.4	51.7	45.6	47.32	+ 4.07	.242	.271	.272	.262	85	70	89	80	N	S	Calm.	S 30 E	4.2	6.0	0.0	0.80	2.98	...	...
	29.6219	29.6180	29.6374	29.6274	51.74	63.47	55.10	57.28	+ 0.03	.362	.396	.367	.373	89	65	81	77	.....	.....	.....	.....	5.06	12.50	4.45	...	7.39	3.020	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 A.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.025 at 2 p.m. on 8th. } Monthly range
Lowest Barometer.....29.203 at 4 p.m. on 4th. } 0.822.

Self-registering Ther.
- Maximum Temperature .....79°0 on 12th. } Monthly range
- Minimum Temperature.....33°5 on 15th. } 45.5.
- Mean Maximum Temperature .....66°17. } Mean daily range
- Mean Minimum Temperature .....46°82. } 19°35.
- Greatest daily range.....27°4 from 2 p.m. of 12th to 2 p.m. of 13th.
- Least daily range.....11°2 from a.m. to p.m. of 7th.

Warmest day ..... 4th....Mean Temperature ....69.75 } Difference=24°92.
Coldest day.....20th....Mean Temperature ....44.83 }

Maximum } Solar .....132°5 on 11th. } Monthly range
Radiation } Terrestrial ..... 24°0 on 15th. } 108.5.

Aurora observed on 5 nights, viz.: 4th, 14th, 19th, 20th and 25th.

Possible to see Aurora on 19 nights; impossible on 11 nights.

Raining on 14 days; depth 3.020 inches; duration of fall 53.5 hours.

Mean of Cloudiness, 0.46.

WIND.

Resultant Direction N. 81° W.; Resultant Velocity 2.92.

Mean Velocity 7.39 miles per hour.

Maximum Velocity 30.0 miles, from 1.30 to 2.30 p.m. of 30th.

Most Windy day 1st; Mean Velocity 15.87 miles per hour.

Least Windy day 7th; Mean Velocity 2.43 miles per hour.

Most Windy hour 1 p.m.; Mean Velocity 12.90 miles per hour.

Least Windy hour 10 p.m.; Mean Velocity 4.45 miles per hour.

Dew recorded on 1st, 3rd, 9th, 10th, 11th, 12th, 22nd and 27th.

Fog on 4th, 7th, 9th, 10th, 12th, 24th and 27th.

First frost of season 15th severe.

Lightning on 4th, 12th, 18th, 19th, 26th and 27th. Thunder on 4th, 19th and 27th.

Solar halo Sept. 9th. Lunar halo 9th.

COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1845	56.0	— 2.1	79.6	34.0	45.6	16	6.245	...	...	...	...	0.34 lbs
1846	63.6	+ 5.5	84.3	37.3	47.0	11	4.595	...	...	..	...	0.33
1847	55.6	— 2.5	74.5	35.0	39.5	15	6.665	...	...	...	...	0.33
1848	54.2	— 3.9	80.4	28.1	52.3	11	3.115	...	...	N 71 W	2.38	5.81 mls
1849	58.2	+ 0.1	80.1	32.7	47.4	9	1.480	...	...	N 75 W	0.69	4.23
1850	56.5	— 1.6	76.0	29.5	46.5	11	1.735	...	...	S 65 W	1.02	4.73
1851	60.0	+ 1.9	86.3	32.0	54.3	9	2.665	...	...	N 14 E	1.03	5.45
1852	57.5	— 0.6	81.8	35.8	46.0	10	3.630	...	...	N 77 W	0.53	4.60
1853	58.8	+ 0.7	85.5	33.9	51.6	12	5.140	...	...	North	1.06	4.33
1854	61.0	+ 2.9	93.6	35.8	57.8	14	5.375	...	...	N 22 W	1.33	4.04
1855	59.5	+ 1.4	82.6	33.0	49.6	12	5.585	...	...	N 20 E	1.29	7.61
1856	57.1	— 1.0	78.4	35.0	43.4	13	4.105	...	...	S 79 W	1.98	6.53
1857	58.6	+ 0.5	82.0	34.1	47.9	11	2.640	...	...	N 68 W	1.61	6.55
1858	59.1	+ 1.0	81.4	35.6	45.8	8	0.735	...	...	S 74 W	1.53	5.69
1859	55.2	— 2.9	75.4	35.7	39.7	15	3.525	...	...	N 44 W	1.60	6.36
1860	55.3	— 2.8	75.8	28.7	47.1	14	1.959	...	...	N 71 W	2.63	5.79
1861	59.1	+ 1.0	78.8	37.1	41.7	17	3.607	...	...	N 71 W	1.39	4.81
1862	59.6	+ 1.5	79.4	39.0	40.4	9	2.344	...	...	N 59 W	1.07	5.11
1863	55.9	— 2.2	80.0	31.4	48.6	8	1.235	...	...	N 16 W	1.92	6.46
1864	56.4	— 1.7	73.0	37.8	35.2	11	2.508	...	...	N 38 W	1.89	7.06
1865	64.5	+ 6.4	90.5	42.0	48.5	12	2.450	...	...	S 56 E	0.47	4.12
1866	55.2	— 2.9	80.0	34.4	45.6	15	5.657	...	...	N 33 W	1.45	4.63
1867	57.9	— 0.2	87.0	31.8	55.2	9	1.226	...	...	N 37 W	1.48	5.43
1868	56.6	— 1.5	75.5	36.0	39.5	16	4.239	...	...	N 74 W	0.88	4.68
1869	60.7	+ 2.6	81.0	34.4	46.6	8	4.027	...	...	N 53 W	1.16	4.89
1870	61.8	+ 3.7	78.0	45.8	32.2	11	6.794	...	...	N 29 E	2.26	5.04
1871	54.8	— 3.3	81.8	34.0	47.8	8	1.290	...	...	N 74 W	1.72	5.50
1872	59.1	+ 1.0	84.4	38.2	46.2	16	2.526	...	...	N 79 W	1.47	5.24
1873	57.3	— 0.8	79.0	33.5	45.5	14	3.020	...	...	N 81 W	2.92	7.39
Res'lts to 1872.	58.08	...	80.97	34.93	46.04	11.21	3.679	...	..	N 53 W	1.07	5.43
Excess for '73.	— 0.78	...	— 1.97	— 1.43	— 0.54	+ 2.79	— 0.659	...	..	..	..	+ 1.96

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—OCTOBER, 1873.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Result't.	Velocity of the Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
					°	°	°	°	°												°							
1	29.697	29.698	29.786	29.7310	45.9	57.8	43.8	49.00	— 1.98	.228	.201	.200	.210	73	42	70	62	W	W	Calm.	N 77 W	8.3	17.5	0.0	8.20	8.50	...	...
2	.907	.869	.830	.8622	36.5	52.1	44.5	45.62	— 4.97	.197	.256	.228	.232	91	66	77	76	Calm.	S	Calm.	S 7 W	0.0	6.0	0.0	2.74	2.81	...	...
3	.898	.860	.679	.7988	43.8	49.0	50.3	47.70	— 2.53	.246	.262	.290	.265	86	75	80	80	N	E	E	N 75 E	3.0	10.4	14.3	7.44	8.44	...	...
4	.509	.458	.401	.4515	48.5	55.7	55.0	53.35	+ 3.50	.314	.414	.416	.380	92	93	96	93	E	Calm.	Calm.	N 84 E	2.6	0.0	0.0	2.96	3.13	0.400	...
5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S W	N•W	N 81 W	2.2	7.8	5.0	4.79	5.93	.010	...
6	.405	.556	.617	.5390	43.0	43.4	35.5	39.73	— 9.40	.238	.133	.160	.174	86	46	77	71	N	N	N	N 23 W	10.2	16.6	8.5	11.63	11.85	.020	...
7	.632	.566	.531	.5675	31.1	49.2	42.0	41.78	— 7.00	.152	.225	.219	.195	87	64	82	74	N W	S	Calm.	S 78 W	3.4	8.4	0.0	1.97	3.03	...	...
8	.632	.678	.756	.6955	37.6	59.6	45.9	48.38	— 0.07	.183	.296	.268	.248	81	58	87	74	W		Calm.	S 67 W	1.0	2.0	0.0	1.05	1.27	...	...
9	.812	.826	.780	.8033	44.9	59.6	51.7	52.43	+ 4.30	.299	.364	.322	.332	100	71	84	85	S E	S E	E	S 64 E	1.5	4.6	1.4	1.65	1.77	...	...
10	.752	.702	.684	.7072	47.0	61.8	52.8	53.75	+ 5.93	.303	.337	.332	.329	94	61	83	80	Calm.	E	Calm.	S 83 E	0.0	5.4	0.0	1.97	2.13	...	...
11	.580	.499	.511	.5217	48.8	56.4	51.7	52.48	+ 4.97	.340	.382	.303	.335	99	84	79	84	N E	Calm.	N W	N 38 W	1.0	0.0	18.0	2.73	3.12	.040	...
12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	N W	W	N 49 W	10.2	24.0	5.5	13.29	13.60	...	...
13	.772	.645	.575	.6545	36.2	54.6	52.1	48.35	+ 1.45	.193	.308	.307	.265	90	72	78	77	W	S	S W	N 36 W	0.1	14.0	11.0	7.18	7.60	Inap	...
14	.721	.852	30.030	.8853	47.0	64.0	50.3	52.57	+ 5.97	.292	.206	.189	.223	91	37	52	61	W	W	N W	N 78 W	10.0	19.8	1.8	8.64	8.97	...	...
15	30.134	30.094	29.956	30.0498	36.2	55.3	48.4	47.83	+ 1.48	.201	.328	.315	.282	94	75	92	84	N	E	N E	N 74 E	5.0	10.0	4.1	3.16	4.43	...	...
16	29.853	29.709	.840	29.8008	40.2	63.2	54.2	53.92	+ 7.85	.238	.426	.346	.334	95	74	82	80	Calm.	W	N W	N 82 W	0.0	9.0	4.4	4.09	5.56	...	...
17	.944	.902	.702	.8340	46.3	50.3	52.1	49.62	+ 3.83	.213	.259	.330	.272	68	72	85	76	E	E	E	N 67 E	4.8	11.1	12.6	8.38	9.15	...	...
18	.489	.455	.617	.5272	55.3	57.8	49.2	53.68	+ 8.15	.377	.426	.325	.362	85	89	93	87	S	S W	S W	S 42 W	1.0	13.5	3.4	4.65	5.88	.010	...
19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	Calm.	N	N 19 W	0.6	0.0	11.8	1.78	2.54	...	...
20	.591	.504	.165	.3877	42.0	39.4	35.5	38.55	— 6.50	.214	.185	.202	.200	80	76	96	85	N	N	N	N 3 E	15.4	31.5	21.4	19.48	19.60	.610	Inap.
21	28.915	29.168	.270	.1377	46.3	42.7	40.2	43.00	— 1.80	.250	.188	.237	.223	80	68	95	80	S E	S	S	S 14 E	21.6	28.0	24.5	15.58	21.61	.430	...
22	29.351	.513	.587	.4965	42.7	51.0	46.3	46.35	+ 1.78	.234	.260	.282	.263	83	69	90	83	S W	S E	E	S 32 W	13.5	10.0	6.0	7.62	10.08	.050	...
23	.519	.623	.778	.6590	52.4	52.4	44.1	49.15	+ 4.83	.394	.294	.224	.302	96	74	77	83	S	W	N W	S 57 W	8.9	13.0	6.6	5.83	9.17	.180	...
24	.925	.934	.922	.9290	33.3	49.2	37.6	40.33	— 3.72	.170	.225	.157	.177	89	64	70	71	W	W	W	S 80 W	4.5	11.0	4.0	5.70	5.82	...	...
25	.976	.960	.894	.9407	32.6	47.0	38.0	39.57	— 4.23	.152	.186	.186	.175	82	57	81	73	W	S W	N	N 67 W	5.0	6.0	7.6	3.94	5.43	...	...
26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	Calm.	N 81 E	4.0	9.2	0.0	3.73	5.81	.010	...
27	28.939	.127	.283	.1353	47.0	47.4	38.7	43.93	+ 0.58	.313	.229	.202	.244	97	70	86	84	S W	W	Calm.	N 89 W	6.0	22.0	0.0	10.08	10.28	.195	...
28	29.309	.256	.359	.3180	36.6	38.4	32.2	35.78	— 7.32	.204	.206	.133	.176	94	88	72	83	W	S W	S W	S 46 W	0.2	12.6	9.0	5.40	6.33	.200	...
29	.482	.778	.944	.7623	30.1	34.4	27.5	30.90	—11.97	.150	.107	.129	.132	89	54	86	77	N W	N W	N W	N 53 W	19.6	18.0	2.8	10.98	11.59	...	0.1
30	.902	.749	.705	.7732	35.5	39.8	42.7	39.57	— 3.07	.185	.129	.141	.150	89	52	51	62	S E	S E	S E	S 42 E	18.4	16.6	16.0	14.20	14.81	...	...
31	.621	.596	.662	.6005	41.6	42.0	27.9	36.32	— 6.10	.173	.188	.110	.152	65	70	71	69	E	S W	S W	S 19 W	4.2	17.0	9.0	7.71	11.78	...	0.1
									— 0.52	.224	.226	.210	.216	87	67	80	78					6.01	12.10	6.73	...	7.81	2.155	0.2

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.160 at 8 a.m. on 15th } Monthly range=
Lowest Barometer .....28.915 at 6 a.m. on 21st } 1.245.

Self-registering Ther.
- Maximum temperature.....69°2 on 16th } Monthly range=
- Minimum temperature .....24°2 on 29th } 45°0
- Mean maximum temperature.....53°79 } Mean daily range=
- Mean minimum temperature .....37°46 } 16°33.
- Greatest daily range.....31°4 from a.m. to p.m. of 16th.
- Least daily range ..... 9°0 from a.m. to p.m. of 5th.

Warmest day.....16th; mean temperature.....53°92 } Difference=23°02.
Coldest day.....29th; mean temperature.....30°90 }

Maximum Radiation { Solar.....117°0 on 7th } Monthy range=
Terrestrial ..... 11°0 on 30th } 106°0.

No Aurora observed.

Possible to see Aurora on 14 nights; impossible on 17 nights.

Raining on 13 days; depth, 2.155 inches; duration of fall, 73.2 hours.

Snowing on 3 days; depth 0.2 inches; duration of fall 1.6 hours.

Mean of Cloudiness, 0.61.

WIND.

Resultant direction, West; resultant velocity, 1.77.

Mean velocity, 7.81 miles per hour.

Maximum velocity, 31.5 miles, from 2 to 3 p.m. of 20th.

Most windy day, 21st; mean velocity, 21.61 miles per hour.

Least windy day, 8th; mean velocity, 1.27 miles per hour.

Most windy hour, Noon; mean velocity, 12.24 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 4.32 miles per hour.

COMPARATIVE TABLE FOR OCTOBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of Days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1845	46.4	+ 0.6	64.0	19.7	44.3	11	1.760	1	Inap.	...	...	0.26 lbs.
1846	44.6	— 1.2	70.1	20.7	49.4	14	4.180	2	Inap.	...	...	0.44
1847	44.0	— 1.8	64.6	20.4	44.2	13	4.390	2	Inap.	...	...	0.19
1848	46.3	+ 0.5	61.8	24.5	37.3	11	1.550	0	0.0	N 54 w	1.24	4.60 mls.
1849	45.3	— 0.5	58.9	24.2	34.7	13	5.965	1	Inap.	N 12 w	1.27	7.76
1850	45.4	— 0.4	66.7	22.4	44.3	10	2.085	0	0.0	N 66 w	1.10	5.30
1851	47.4	+ 1.6	66.2	25.2	41.0	10	1.680	2	0.3	S 72 w	1.06	4.39
1852	48.0	+ 2.2	70.7	23.8	46.9	12	5.280	0	0.0	N 5 E	1.19	4.47
1853	44.4	— 1.4	64.7	23.4	41.3	10	0.875	2	Inap.	S 88 w	1.74	4.77
1854	49.5	+ 3.7	75.4	26.4	49.0	15	1.495	3	Inap.	N 45 w	1.52	4.57
1855	45.4	— 0.4	68.0	22.6	45.4	14	2.485	5	0.8	N 82 w	4.91	9.88
1856	45.3	— 0.5	71.4	23.0	48.4	10	0.875	2	0.1	N 76 w	2.15	6.07
1857	45.4	— 0.4	64.0	26.5	37.5	10	1.040	2	0.2	N 19 w	2.93	6.24
1858	48.8	+ 3.0	76.3	31.5	44.8	17	1.797	1	Inap.	N 34 w	0.36	5.96
1859	43.0	— 2.8	69.8	22.3	47.5	11	0.940	4	Inap	N 68 w	5.04	8.12
1860	47.3	+ 1.5	68.0	28.4	39.6	15	1.618	1	Inap.	N 9 w	2.00	6.93
1861	48.7	+ 2.9	71.0	29.0	42.0	15	1.993	1	Inap.	N 61 w	1.06	5.96
1862	48.7	+ 2.9	76.6	26.2	50.4	19	2.684	2	0.5	N 78 w	2.89	6.53
1863	45.9	+ 0.1	66.4	30.5	35.9	16	2.522	0	0.0	S 71 w	0.48	6.16
1864	45.2	— 0.6	67.0	28.0	39.0	22	3.321	1	Inap.	N 60 w	3.17	6.66
1865	44.5	— 1.3	71.4	21.6	49.8	17	2.705	3	4.5	N 36 w	3.15	7.26
1866	49.1	+ 3.3	71.0	31.8	39.2	11	2.470	1	Inap.	N 30 w	0.84	5.53
1867	49.9	+ 4.1	75.4	31.0	44.4	11	1.970	0	0.0	N 45 w	1.51	5.73
1868	42.4	— 3.4	67.6	24.0	43.6	10	1.365	2	2.0	N 89 w	1.27	7.10
1869	42.3	— 3.5	69.8	18.7	51.1	8	0.962	7	2.3	N 89 w	3.72	6.73
1870	50.0	+ 4.2	68.5	30.2	38.3	16	2.690	0	0.0	N 85 w	1.86	7.11
1871	48.3	+ 2.5	72.2	28.6	43.6	13	1.185	0	0.0	S 66 w	3.75	7.84
1872	45.6	— 0.2	70.0	25.2	44.8	14	3.288	1	Inap	N 18 w	2.22	4.59
1873	45.7	— 0.1	69.2	24.2	45.0	13	2.155	3	0.2	west	1.77	7.84
Res'lts to 1872.	45.85	...	68.84	25.35	43.49	12.55	2.417	1.79	0.84	N 62 w	1.81	6.13
Excess for 1873	— 0.16	...	+ 0.36	— 1.15	+ 1.51	+ 0.45	— 0.262	+ 1.21	— 0.64	...	...	+ 1.68

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THE CANADIAN JOURNAL.

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LEAVES THEY HAVE TOUCHED:

BEING A REVIEW OF SOME HISTORICAL AUTOGRAPHS.*

BY HENRY SCADDING, D.D.

I find in my portfolios and other receptacles of loose miscellaneous matter a considerable accumulation of manuscript documents of more or less public interest. Some of them are throughout in the handwriting of men of eminence, while others bear their signatures only, having been composed, or transcribed, or filled up, by a secretary or other functionary. I have thought that I might in some degree utilize these papers by citing pages from them, as nearly as may be in chronological order, and exhibiting the originals whenever the intrinsic interest of the document or other circumstances seemed to make it worth while to do so. In this way, I suppose, I may make my collections help forward the study among us of civil and literary history.

Autograph documents sometimes enable us to realize to ourselves a historical character in a curious manner. The statesman, the business man, the literary man, each reveals himself with an extra clearness in his manuscripts. Should the paper before us chance to be a first sketch or rough draft, we discover which were the writer's first thoughts and which were his second, what he deemed it politic to add under the circumstances, and what to suppress; while in the handwriting itself we have not only a clue to general character and

* The first of these papers was read before the Canadian Institute, January 10, 1874, as the President's Address for the Session of 1873-4.

temperament, but hints of the mood or frame of mind at the date and moment of composition—evidences as to whether these were calm and collected, or agitated by some dominant passion or feeling. Men whose names, after the lapse of a generation or two, had become simply abstract terms as it were, or mere shadows, thus live again in our imaginations by means of signs traced with their own hands when here in the flesh. No production of theirs coming under our eye in print could affect us in the same lively way.—Sometimes the character of one long defunct may be shrewdly divined from his effigy, his counterfeit presentment, on a well-preserved ancient coin or medal; but a surer idea of him would be gained by the study of an autograph fragment, were it possible to have access to such a waif from the past.—And what is now said of the manuscript relics of eminent men is true also, though perhaps not so strikingly, of books which exhibit their autographs and other evidences of former ownership. Here, we say to ourselves, as we are turning over the leaves of the volume—here are pages which their eyes have carefully scanned: here is matter which has engaged their special attention. Here and there perhaps we discern their underscorings: here and there we have their marginal annotations. To the cursory review then of the MS. collection which I propose to make, I may conveniently add brief notices of some volumes distinguished in the manner now spoken of, which are in my possession.

My first paper will consist of specimens of Canadian historical autographs. I trust that its effect will be to foster an interest amongst us in early Canadian history. To this paper I subjoin a few examples of autographs connected with the history of the adjoining United States. My second paper will be a review of a number of specimens which will, in their way, illustrate Old World history, civil and literary and in their way also, stimulate the study of Old World history amongst us. And in my third paper I shall treat of some MS. relics in my collection which specially relate to personages formerly or at present eminent in the universities of Cambridge and Oxford.

My matter, I must premise, will be of a very miscellaneous character—a mosaic made up of irregular pieces. The autograph collector cannot always possess himself of what he would desire. He must be content with what chance throws in his way. The fragments selected for my purpose in these papers will be, as far as practicable, charac-

teristic of the respective writers, or, if not so to be described, characteristic of the times, or indicative of the manners of the day. Here and there my specimen may form a text for a very brief dissertation on some point which it may suggest. Chronological succession or contemporaneousness will, as I have already hinted, be the chief principle of connection between the several parts of each of my papers.

I.—SOME CANADIAN AUTOGRAPHS AND NORTH AMERICAN GENERALLY.

I proceed, then first, with my Canadian autographs. I have aimed at a catena of manuscript memorials of governors and others who have been of note among us; but I have been hitherto only partially successful in securing specimens. The difficulty of recovering manuscript relics of sixty or seventy years ago is not slight. Whenever the only quotations I have it in my power to give are somewhat colourless, I trust to Canadian local feeling to clothe seemingly trivial words with the needful modicum of interest.

To make a beginning, I produce an autograph letter of the French Duke de la Rochefoucauld-Liancourt. This nobleman visited Canada in 1795. He remained for some time at Newark or Niagara, and then passed down the lake to Kingston. In the account of his travels which he afterwards published, he gave an elaborate description of Upper and Lower Canada, and commented in statesmanlike style on the policy of the Governor-General of the day, Lord Dorchester, and on that of the Lieutenant-Governor of the young western province, General Simcoe. The letter which I have expressly relates to this his volume of Travels, which I need scarcely say has now become a classic to the student of Canadian history. Soon after its publication on the continent of Europe, it was translated into English and published in London. It appears that the first sheet of the English production, containing the Translator's Preface, had been sent over to the duke, and he was shocked at some language which the translator had therein employed in regard to himself. He found himself openly charged with a breach of faith in proclaiming to the world certain matters that had been made known to him in the confidence of private conversation. The letter which ensues is the one which I have in my collection. It is in French, and is addressed to Mr. Neuman, the English translator. The duke says: "Monsieur,—Une petite partie de la traduction que vous publiez de mon Voyage

dans l'Amérique du Nord viens de m'être envoyée de Londres. Je ne vous parlerai ni des censures, ni des éloges que vous faites de cet ouvrage dans votre préface ; il appartiens au jugement et aux opinions du public, et de chaque lecteur en particulier, et chacun peut les prononcer comme il lui plait, et rectifier même parfois le jugement du traducteur, si celui-ci a été fidèle dans sa traduction. Mais, monsieur, vous étes homme de lettres, et homme de lettres dístingué. Je dois donc vous croire des sentiments analogues à cette profession. Comment alors avez-vous pu vous permettre d' écrire dans cette même préface, page 9.—'He tells all that he could learn, without being restrained even by considerations of personal delicacy or the secrecy of honour.' De quel droit vous permettez-vous une insulte aussi offensaute ? Qui vous a dis que j'avais violé un secret ? Qui vous a dîs que les informations que j'avais recueilli dans le haut Canada m'avaient été données en confidence ? Qui peut enfin vous autoriser à dire que j'ai manqué à l'honneur ? Il me semble que pour hasarder une telle assertion contre qui que ce soit, il faut la soutenir de preuves bien fondées et bien multipliées ; outrement on se rende indigne de l'estime des gens honnêtes, car ils mettent les assertions calomnieuses au rang des plus mauvaises actions. Est-ce là une conduite digne d'un homme de lettres, d'un homme moral ? Est-ce enfin, pour me servir de l'expression très significative de votre langue, se conduire 'like a gentleman ?' Je vous en fais juge vous même, monsieur, et si quelques motifs d'interêt personnel ou d'influence particulière ont guidé votre plume en écrivant cette indigne phrase, je doute qu'ils soient suffisants pour vous excuser même aupres de votre réflexion et de votre conscience. J'ai seul, monsieur, le besoin de vous addresser ces reflexions et ces reproches. J'aurais pu les rendre publiques, et je suis assuré que parmi votre nation dont la générosité est un des caracteres principaux, mes reclamations n'auräient pu être mal accueilliés. Mais j'ai preféré les addresser à vous seul, et par respect pour votre caractère d'homme de lettres distingué, et encore par parcequ' ayant été indigné à la première lecture de cette phrase. J'ai néanmoins la confiance que la reputation de probité à la quelle seule j'aspire, et que je crois meriter ne recevra aucune atteinte de votre assertion." He then expresses some apprehension in regard to the perfect accuracy of Mr. Neuman's translation of the Travels. He says : "Je n'ai point lu la traduction dont la préface et l'épitre dedicatoire ni ont été seulement

envoyées par un ami je suppose que la traduction est exacte ; néanmoins, je vous avouerai, monsieur, que la dernière phrase de l'avant dernier *a linea* de l'épitre dedicatoire ne me laisse pas sans inquiétude, puis qu'elle est loin de rendre la sens de l'orignal qui à la verité est peu important dans ce passage. J'ai l'honneur d'être, monsieur, votre tres humble et tres obeissant serviteur, La Rochefoucauld-Liancourt. Hamburg, Septembre 22, [1799], chez Mess. Mattmessen, Salem et Cie." Outside, it is addressed in English, "To H. Neuman, Esq., at R. Phillips', No 71 St. Paul's Churchyard, London ;" and the stamp is "Foreign Office, October 1, 1799."

What Mr. Neuman's rejoinder was I am not able to report. The Travels were published in English, first in the quarto form and then in the octavo. I do not see that the translator made any alteration in his language in the second issue. The duke takes for granted, it will be observed, that the translator in his preface alluded to the account given of the policy of the Governor of Upper Canada in relation to the United States, and doubtless he was right in his conjecture. It will be proper, however, to mention that the duke in that portion of his narrative guarded himself against a possible charge of breach of faith. After speaking of the persistent hostility of the Governor against the newly established republic, and of his intention to employ the Indians in any future war with that power, he adds: "I should not have credited these projects had I heard them stated by any individual but the governor himself; nor should I have ventured to introduce them here, but that, within my knowledge, he has repeatedly communicated them to several other persons." The translator may also have had in view what the duke reports of the sentiments of some military men with whom he dined at Kingston. Amongst these gentlemen, he says, "The general opinion in regard to Canada is, that this country proves at present very burdensome to England, and will be still more so in future; and that, of consequence, Great Britain would consult her true interest much better by declaring Canada an independent country than by preserving it an English colony at so enormous an expense. The Canadians say they will never be sincerely attached to England, so that if in time of war a militia were raised, not half of them would take up arms against America [he means to say the United States], and none perhaps against France. The British Government commits, therefore, in their opinion, a gross error in expending such vast sums in attempting to

improve and preserve a country which, sooner or later, is sure to secede from Great Britain, and which, did it remain faithful to the mother country, could not be of real service to it for any length of time."

As to Mr. Neuman, of whom the duke speaks as "a distinguished man of letters," the only other literary production of his which I see named is a translation of a play of Kotzebue's, entitled "Self-Immolation." As to the duke himself, the author of the Travels, it will be of interest to state that he was the descendant and lineal representative of François, Duc de la Rochefoucauld, the famous author of the "Reflexions, or Moral Sentences and Maxims," who was descended from the ancient Dukes of Guienne. One of these Rochefoucaulds served under Philip Augustus of France against our Cœur de Lion; and Froissart speaks of another of them who attended a tournament at Bourdeaux with a retinue of 200 men, all kinsmen or relatives. One perished in the massacre of St. Bartholomew's Eve, and his heir was soon afterwards murdered by the partizans of the League. The son of this one was created a duke by Louis XIII., (the title had been previously count), and it was his son, the second duke, who became known throughout Europe by his volume of Maxims. The next duke, Master of the Horse to Louis XIV., was, like his predecessors, a great soldier; as also was his successor, who took part in the engagement at Landeu, in which William III. of England was defeated. The next duke became a friend and follower of Voltaire, and lost favour at the court of Louis XV. The next, during the troubles of the French Revolution, was taken from his carriage and killed by a mob in the presence of his wife and mother at Gisors in 1792, his crime being his title, although politically he was a liberal. The traveller of the years 1795, '96, '97, in the United States and Canada, was the nephew of this duke, and, as I suppose, inheritor of the title, which, however, had become illegal in France. He was the friend, and, in some sort, the pupil, agriculturally, of the Englishman Arthur Young, and many parts of the duke's work consist of the kind of information which Arthur Young, towards the close of the last century, travelled through England, Ireland, France and Italy to collect. The Epistle Dedicatory, of which we have already heard, prefixed to the Travels, is addressed to the widow of the recently-murdered duke, his uncle: the lady, however, was dead before the Travels appeared. The duke, while referring to this

circumstance in his Preface, alludes to the tragical fate of his relative. It would appear that both uncle and nephew had been warned of their danger if they remained in France; but of his uncle, the nephew says: "His virtue was so exalted as to render him unsuspicious of so nefarious a course, and his internal consciousness induced him to slight the advice which his friends gave both to him and to me, at the time when an order was given to arrest us, and which in all probability was not the only mandate concerning us from the same quarter. He would not quit France; but I," exclaims the author of the Travels,—"I, who was less confident and less virtuous, fled from the poignard, while he fell by its stroke!"

But it is time to proceed to another autograph.

The Lord Dorchester of whom the Duke de Liancourt has occasion to speak so often in the first volume of his Travels was better known as General Carleton, and General Sir Guy Carleton. As General Carleton he won in his day laurels from Quebec almost as glorious as Wolfe's. Furnished with very inadequate means, he endured a close siege of six months within its walls, defending it against two determined assaults, in one of which the commander of the invading force, Montgomery, was slain. This was in 1775-6. The war of the American Revolution was in progress. The Congress, aware of the weakened condition of the royal armies in Canada, determined to attempt the conquest of that country. On the 3rd of November, 1775, Montreal surrendered to a United States force sent against it by way of Lake Champlain and the Richelieu. Not many days later in the same month, a force appeared before Quebec, having pushed north by a new and most difficult route—the valleys of the Kennebec and Chaudiere. Quebec was almost destitute of competent defenders. The bulk of the troops had been drawn off to posts more exposed. Happily Carleton, Governor-General at the time, and Commander-in-Chief, had escaped capture at Montreal, and by the memorable aid of Com. Bouchette, had descended the river in safety to Quebec. Here he instantly organized a garrison out of such material as was at hand: the French and English inhabitants acting as militia; some men of a discharged Highland regiment (Fraser's); the sailors from the ships; a few regulars (70); a few Royal Artillery (22), and 35 marines. All caught the spirit which animated Carleton himself, and the result was that the city and fortress were saved to England. A consider-

able portion of the invading force surrendered at the time their commander was slain: the remainder, in the following spring, decamped, leaving behind them their stores, their artillery, their scaling ladders and their sick. Three armed ships from England seen rounding the opposite promontory of Point Levi, bringing aid and supplies, were the cause of this precipitate flight. No hostile flag has since been seen before the walls of Quebec. These occurrences took place, as we already said, in 1776.

My *MS.* memorial of Carleton is interesting and somewhat characteristic. It consists of an order wholly in his own handwriting, authorizing the distribution of powder and shot to the Indians of Lorette, a well-known Huron village near Quebec. The date of this document is January 4, 1770. It reads as follows: "Quebec, Jan. 4, 1770. You are hereby required to issue out of the King's stores of this town, one hundred weight of gunpowder and two hundred weight of shot for the Huron, of Lorette. GUY CARLETON. To the respective officers of the Board of Ordnance."

The band of Hurons at Lorette were thus, we see, not deprived of their fire-arms. Confidence in the native races was established. The wide-spread conspiracy of Pontiac against the English had collapsed some time since; and the great chief himself had met with a violent death in the far west the preceding year. The powder and shot ordered to be issued from the King's stores were expected probably to aid in provisioning the city during the winter months.

In 1777 Carleton solicited his own recall from Canada, offended at the appointment of General Burgoyne, instead of himself, to the command-in-chief of the army in North America. He afterwards, however, obtained the honour which he had envied Burgoyne. But the war was then drawing to a close. It was in 1782 that he succeeded Sir Henry Clinton as Commander-in-Chief. In 1786 he was raised to the peerage as Lord Dorchester; and in the same year he was sent out again to Canada to execute the functions of Governor-General a second time. In 1796 he returned to England, after a popular administration; and in 1806 he died, having attained the age of eighty-three.

Sir Guy Carleton's successor as Governor-General, before his second return to Canada, was General Haldimand, a Swiss by birth. I have his autograph attached to a document dated Quebec, 25th October, 1782—a paper transmitted to the Lords Commissioners of

his Majesty's Treasury, in company with an account of "all the revenues in Canada for the last six years." I regret that I do not possess the account itself. He adds: "Independent of these revenues, there are quit-rents and other territorial rights due to the Crown from the lands at or near Detroit. I do not find," he says, "that any account has been transmitted here of the amount. I have applied," he says, "to Lieutenant-Governor Hamilton, and to Major de Peyster, the present commanding officer at Detroit, for information on that subject, which I will take the earliest opportunity to transmit." This Report is addressed to Richard Burke, Esq., who appears to have been Secretary to the Lords of the Treasury. He was brother of the celebrated Edmund Burke, and he made some speeches in Parliament on the Quebec Bill.

I have another document bearing the signature of "Fred. Haldimand," which will recall the times in which it was written. The Revolution, we must again remember, was in progress in New England and the colonies further south. But Canada was yet a fastness of the Royal cause. Here was still a base of operation against the anti-Monarchists of the continent. From Quebec, "British gold" circulated to clever hands in Albany and New York and other places; hence also was it disbursed in the way of relief to sufferers in limb and property in the cause of the Crown. Canada was the asylum towards which the eyes of persecuted loyalists elsewhere were, voluntarily or involuntarily, directed. Sometimes, as we shall see, an itinerant friar from these quarters was a secret political agent elsewhere. Once, perhaps often, a scout is dispatched hence to intercept a mail, with a view doubtless not only of embarrassing the malcontents, but also of discovering who were and who were not disaffected nearer home.

The paper to which I refer contains an account of cash paid at sundry times for private services and gratuities from 25th June, 1779, to 10th November, 1784. Major Robert Mathews, Secretary to the Governor, also signs the document. I give a few of the items. "1780, Aug. 10.—To Enos McIntosh for services rendered to scouting party, £6. Sep. 26.—To Lieutenant Smith, of the 31st Regiment, towards indemnifying his loss when shipwrecked serving with a party as marines on board the armed ship *Wolfe* (20 guineas), £23 6s. 8d. Nov. 29.—To John Coffin, Esq., (late of Boston,) in consideration of his distinguished services during the blockade, and

his distressed circumstances, £100. 1781, May 14.—To Mr. Wing and his guide, John Chalmers, going on secret service to Saratoga to intercept the Albany mail, £24. May 16.—To Captain Sherwood of the Loyal Rangers, gratuity for private services, £50. July 5.—To *Hudibras* (an inhabitant of Albany), gratuity for private services (50 guineas), £58 6s. 8d. [It would have brought trouble upon the party to have named him.] Oct. 16.—At Sorel, gratuity to the officers of the militia for their readiness upon all occasions in forwarding the service (6 guineas), £7. 1782, Feb. 27.—Père Louis, a Recollet, gratuity for private services (10 guineas), £11 13s. 4d. April 7.—To Capt. Sherwood (agent for secret service) to send to Col. Wells and other correspondents in the Colonies, to defray contingent expenses (50 guineas), £58 6s. 8d. July 9.—To Mr. Lansing, (agent for Vermont), gratuity for private service, £49. 1783, May 27.—To Captain Brant, the Mohawk Chief (30 guineas), £35. July 28.—To Baptiste Lepeau, an inhabitant of Percée, gratuity granted to him yearly in consideration of his having lost both his hands, and otherwise wounded at the defence of that post, £10. Sept. 11.—To Mr. Shepherd, of Albany, gratuity for forwarding dispatches and intelligence (25 guineas), £29 3s. 4d. 1784.—To Joseph Brant and Captain David, Mohawk Chiefs, to defray their expenses from and to Montreal. Oct. 25.—To Captain Gleissenberg, of the Brunswick troops, in consideration of his services, having been twice wounded in our service, and in great distress, £58 6s. 8d."

The paper from which I have made these extracts is dated, not from Quebec, but from Curzon Street, London, 23rd March, 1786. This was the year after Haldimand's recall. Trouble arising out of his government in Canada, fell upon him after his retirement into private life. He had administered affairs too much in the spirit of a martinet, and actions at law for damages were successfully brought against him in the English courts.

Of this period is an autograph signature which I have of "John Schank, senior officer and commissioner." It is attached to a certificate that "Surgeon Melvill had attended the pilots and sick invalids that were put on board His Majesty's armed ship, the *Canceaux*, by order of His Excellency Gen. Haldimand," for which Surgeon Melvill was to receive a gratuity of six guineas. To this is appended Surgeon Melvill's receipt to Thomas Dunn, Esq., Paymaster, Naval Department, Quebec.

John Schank was afterwards an Admiral of the Blue. In 1776 he commanded the armed ship *The Inflexible*, on Lake Champlain. In 1793 he published in London a folio "Sketch of Two Boats and a Cutter with Sliding Keels." He is to be distinguished from Colonel, subsequently General, Shank, who once commanded the forces in Upper Canada, and possessed property in the neighbourhood of Toronto. The name of the latter was spelt differently. I have his autograph also in a note to be given hereafter.

Some of the agents dispatched to Albany and elsewhere on confidential errands by Governor Haldimand were, no doubt, occasionally involved in trouble through their mission. We have perhaps an instance in one Augustin Lansier, who gives this receipt in 1779 for money received by way of compensation for sufferings at the hands of "the rebels":—"Received from Thomas Dunn, Esq., by order of His Excellency, Gen. Haldimand, One Hundred Pounds, currency, as a gratuity for my sufferings when Prisoner among the Rebels, and on account of my Effects of which they plundered me in March, 1776, when they took me Prisoner. LANSIER. Quebec, 9th Sep. 1779." That his Christian name was Augustin we learn from a mem. on the back of the receipt. The Thomas Dunn, Esq., here named, twice at subsequent periods administered the Government of Lower Canada during interregnums with great eclat. The Hon. J. H. Dunn, familiar to readers of Upper Canada history, and father of Colonel Dunn, distinguished in the Crimea, was, as we suppose, of the same Dunn family already connected with Canada. Of Governor Haldimand we have permanent memorials in the Canadian local names—Haldimand County, Haldimand Township, and Haldimand Cove. It was during his administration that the scheme for settling the United Empire Loyalists in Upper Canada began to be carried actively into effect. From Lord Dorchester, it should have been said, Dorchester Township is named; and once the heights from Queenston to Hamilton appear to have been known as Dorchester Mount.

Among my papers is the autograph of a military commander very distinguished in Canadian history just before the era of Haldimand and Lord Dorchester. The name of Amherst is familiar to us as that of the general officer to whom the Marquis de Vaudreuil surrendered Montreal and the whole of Canada in 1760. He was afterwards raised to the peerage as Lord Amherst. It is his signature simply as "Amherst" that I possess, repeated thrice. The document,

however, does not relate to Canada; but it may be worth while to give it, furnishing as it does an example of routine at the Horse Guards in 1789. Moreover, it is addressed to the identical Sir George Yonge from whom our Yonge Street has its name. The paper is labelled at the back, "Lord Amherst, recommending succession to Lieut. Pyott in the 2nd Regiment of Life Guards, and to Lieut. Young in the 60th Regiment of Foot." It is wholly in Amherst's own admirable bold handwriting. Thus it reads: "St. James' Square, 3rd April, 1789. Sir, I have the honour to enclose to you a succession to Lieut. Pyott, in the 2nd Regiment of Life Guards, which His Majesty has been pleased to approve, and to direct that Commissions may be prepared for His Majesty's signing. I reported to the King the situation of Lieut. John Young, of the 60th Foot, that I had transmitted his memorial to you; and that from his services, losses and paralytick state of health, he begged to be permitted to sell his Commission; and as Lieut. Pyott was desirous of remaining in the Army, I hope, he might be allowed to purchase of Lieut. Young. I therefore beg the favour of you to lay the same before His Majesty, and to desire the Commission may be dated on the 2nd of April, by which Lieut. Pyott will retain his rank in the Army. I enclose Lieuts. Pyott and Young's certificates. I have the honour to be, &c., AMHERST." We have then also, wholly in Amherst's hand, a memorandum of the move-up consequent on Lieut. Pyott's change: "Most humbly proposed to your Majesty in the Second Regiment of Life Guards: By Purchase, to be Lieutenant *vice* Edward Pyott, who resigns, the eldest Cornet who can purchase—John Hughes. To be Cornet *vice* John Hughes, promoted Sub-lieutenant in the late first Troop of Horse Grenadier Guards—Arthur Cuthbert." All this is signed "Amherst, Colonel," and dated 2nd April, 1789, with the addition, "Approved by the King: the Commission dated this day. AMHERST."

The supporters of Lord Amherst's shield of arms are two Indians, described in Burke's Peerage as "Canadian Indians;" but, strange to say, they are represented as fettered, as in chains. The heraldic emblazonment of these figures is this: "Two Canadian war Indians, of a copper colour, rings in their ears and noses, and bracelets on their wrists and arms, argent; cross-belts over their shoulders, buff; to one, a powder-horn pendent; to the other, a scalping-knife; their waists covered with a short apron, gules; gaiters, blue; seamed, or;

legs fettered and fastened by a chain to the bracelet on the outer wrist, proper; the dexter Indian holding in his exterior hand a battle-axe; the sinister holding in his exterior hand a tomahawk, thereon a scalp, all proper." It is evident the herald gave his whole mind to this elaborate delineation. The Canadian will note his elegant euphemisms "gaiter" and "apron," and the nice distinction of battle-axe and tomahawk. It need scarcely be added that our Amherstburg and Amherst Island have their names from this Lord Amherst. One of Lord Amherst's seats, that near Seven Oaks in Kent, is called "Montreal."

Lord Amherst was twice Commander-in-Chief of the Forces, in England. In 1795 he was succeeded in this high office by the Duke of York, second son of George III., whose column dominates St. James' Park in London so conspicuously at the present day. It was from this Duke of York that Toronto was named York; and on this account it is that I preserve with care a certain cheque on the famous London Bankers, Coutts & Co., for the respectable sum of £160. These are its terms: it is in favour, it will be seen, of a namesake of the duke's, of whom I discover nothing. "London, February 6th, 1798. To Messrs. Thomas Coutts & Co. Pay to Frederick Anders or Bearer the sum of One Hundred and Sixty Pounds, and place to my account. FREDERICK." The whole is written with the duke's own hand, neatly and well, on a half sheet of gilt-edged notepaper. Frederick Street, Toronto, still retains the duke's Christian name.

I wish I could produce a relic of General Wolfe. I have to content myself at present with a long and valuable holograph from the hand of one who was intimately associated with him, Major Holland. Major Holland was an engineer officer, who, in a most essential manner, aided General Wolfe at the capture of Louisbourg and before Quebec. Major Holland's name has also a special interest with us as having been given to a well-known river to the north of Toronto, the Holland River. In his letter which I transcribe, we are introduced to Captain Cook, subsequently the great circumnavigator, who comes before us consistently as the intelligent, inquiring man he was, desirous of adding at every opportunity to his professional knowledge and skill. Cook, it appears, was sailing master of the ship-of-war *The Pembroke*, of which the commander was Captain Simcoe, father of Governor Simcoe. When at Quebec

in 1792, Governor Simcoe desired Major Holland to give him, in writing, whatever particulars he could recall respecting his father, Captain Simcoe, then deceased some thirty years. Hence the letter which I have. The Captain of *The Pembroke*, it will be observed from Major Holland's account, was an enlightened and spirited naval officer, possessed of the dash and daring that marked Wolfe himself. Cook too, it will be noticed, acknowledged in after years his great indebtedness to his former superior on board *The Pembroke*. Holland's letter to Governor Simcoe reads as follows :

"Quebec, 11th January, 1792. Sir : It is with the most sincere pleasure that I recall to memory the many happy and instructive hours I have had the honour of enjoying in your late most excellent father's company ; and with more than ordinary satisfaction do I recollect the following circumstance which gave birth to our acquaintance : — The day after the surrender of Louisbourg, being at Kensington Cove surveying and making a plan of the place, with its attack and encampments, I observed Captain Cook (then master of Captain Simcoe's ship *The Pembroke* man-of-war) particularly attentive to my operations; and as he expressed an ardent desire to be instructed in the use of the Plane Table (the instrument I was then using), I appointed the next day in order to make him acquainted with the whole process. He accordingly attended, with a particular message from Captain Simcoe expressive of a wish to have been present at our proceedings, and his inability, owing to indisposition, of leaving the ship ; at the same time requesting me to dine with him on board, and begging me to bring the Plane Table pieces along. I with much pleasure accepted that invitation, which gave rise to my acquaintance with a truly scientific gentleman, for the which I ever held myself much indebted to Captain Cook. I remained that night on board, and in the morning landed to continue my survey at White Point, attended by Captain Cook and two young gentlemen who your father, ever attentive to the Service, wished should be instructed in the business. From that period I had the honour of a most intimate and friendly acquaintance with your worthy father ; and during our stay at Halifax, whenever I could get a moment of time from my duty, I was on board *The Pembroke*, where the great cabin, dedicated to scientific purposes and most taken up with a drawing-table, furnished no room for idlers. Here, under Captain Simcoe's eye, Mr. Cook and myself compiled materials

for a chart of the Gulf and River St. Lawrence, which plan at his decease was dedicated to Sir Charles Saunders, with no other alterations than what Mr. Cook and I made coming up the river. Another chart of the river, including Chaleur and Gaspé Bays, mostly taken from plans in Admiral Durell's possession, was compiled and drawn under your father's inspection, and sent by him for immediate publication to Mr. Thomas Jeffereys, predecessor to Mr. Faden. These charts were of much use, as some copies came out prior to our sailing from Halifax for Quebec in '59. By the drawing of these plans under so able an instructor, Mr. Cook could not fail but improve, and thoroughly brought in his hand, as well in drawing as protracting, &c.; and by your father's finding the latitudes and longitudes along the coast of America, principally Newfoundland and Gulf of St. Lawrence, so erroneously heretofore laid down, he was convinced of the propriety of making accurate surveys of those parts. In consequence, he told Captain Cook that as he had mentioned to several of his friends in power the necessity of having surveys of those parts, and astronomical observations made as soon as peace was restored, he would recommend him to make himself competent to the business by learning Spherical Trigonometry, with the practical part of Astronomy; at the same time giving him Leadbetter's Works, with which Mr. Cook, assisted by his explanations of difficult passages, made infinite use, and fulfilled the expectations entertained of him by your father, in his survey of Newfoundland. Mr. Cook frequently expressed to me the obligations he was under to Captain Simcoe; and on my meeting him in London in the year 1776, after his several discoveries, he confessed most candidly that the improvements and instructions he had received on board *The Pembroke* had been the sole foundation of the services he had been enabled to perform. I must now return to Louisbourg, where, being General Wolfe's engineer during the attack of that place, I was present at a conversation on the subject of sailing for Quebec that Fall: the General and Captain Simcoe gave it as their joint opinion it might be reduced the same campaign. But this sage advice was overruled by the contrary opinions of the admirals, who conceived the season too far advanced, so that only a few ships went with General Wolfe to Gaspé, &c., to make a diversion at the mouth of the River St. Lawrence. Again: early in the spring following, had Captain Simcoe's proposition to Admiral Durell been put into execu-

tion, of proceeding with his own ship *The Pembroke, The Sutherland,* Captain Rous, and some frigates, *via* Gut of Canso for the River St. Lawrence, in order to intercept the French supplies, there is not the least doubt but that Monsieur Cannon with his whole convoy must have inevitably been taken; as he only made the river six days before Admiral Durell, as we learnt from a French brig taken off Gaspé. At this place, being on board *The Princess Amelia,* I had the mortification of being present whilst the minute guns were firing on the melancholy occasion of Captain Simcoe's remains being committed to the deep. Had he lived to have got to Quebec, great matter of triumph would have been afforded him, on account of his spirited opposition to many Captains of the Navy, who had given it as their opinion that ships of the line could not proceed up the river; whereas our whole fleet got up perfectly safe. Could I have had recourse to my Journals, which have unfortunately been lost, it would have been in my power to have recounted many circumstances with more minuteness than I am at present enabled to do. I have the honour, &c., SAMUEL HOLLAND."

Captain Simcoe's death occurred, from natural causes, off Gaspé, just as the fleet was beginning its ascent of the river for the memorable attack on Quebec, in 1759. His monument in Cotterstock Church, Northamptonshire, says: "He was an officer esteemed for great abilities in naval and military affairs, of unquestioned bravery, and unwearied diligence." Appended to Major Holland's letter is the following memorandum in the handwriting of Gen. Simcoe himself: "Major Holland told me that when my father was applied to, to know whether his body should be preserved to be buried on shore, he replied, 'Apply your pitch to its proper purpose: keep your lead to mend the shot holes: commit me to the deep.' J. G. S." The mention in Major Holland's letter of "the great cabin" of *The Pembroke,* "dedicated to scientific purposes, mostly taken up with a drawing table, and furnishing no room for idlers," gives us a pleasant glimpse of an interior scene in an armed cruiser engaged in the double service of defending and surveying a coast. Great, doubtless, has been the debt of all later navigators of the Gulf and River St. Lawrence to the observations jotted down for the first time in the busy great cabin of *The Pembroke.* Major Holland was uncle of Joseph Bouchette, author of "The British Dominions in North America," who ultimately became his successor as Surveyor-General of Lower Canada.

My autographic relic of Surveyor-General Bouchette is a letter written at Montreal in February, 1800, addressed to a cousin of his, Ensign Cheniquy, 2nd Battalion Royal Canadian Volunteers, at Quebec. This letter happens to name Major Holland. It refers to an enclosure, an application to the Governor apparently, which Cheniquy was first to seal and then entrust to the hands of Major Holland, "as if he had not seen it." "You alone," he then proceeds, "can put the matter in fair and speedy train. * * Neglect nothing, and let the matter be over as soon as possible; and let me know the result." He then offers land at 3s. 6d. an acre. "As to land," he says, "I shall dispose of any quantity at 3s. 6d. per acre. I have six hundred acres in Darlington, the third township to the eastward of York, and two hundred acres on Yonge Street, back of the town, lot No. 62; and I have four hundred acres in Rainham, near the Grand River; therefore I state this to you that you may take your choice, or any number of acres you please."

The successor of Gen. Simcoe in the Government of Upper Canada was Lieut.-Gen. Hunter. I have nothing to represent him except a note in the handwriting of his Secretary and Aide-de-Camp, addressed to the Ensign Cheniquy just named. The ensign, after obtaining his commission, had perhaps been prevented by circumstances from joining his corps, and had offered some explanations. The Secretary's note was as follows:—"SIR: I have had the honour of laying your letter of this day [the document is dated at Quebec, 17th March, 1800,] before Lieut.-Gen. Hunter, expressing your anxiety to join your regiment immediately. The General desires me to say that he perfectly approves of your joining your regiment as soon as possible, and thinks the sooner you do so the better. I have the honour to be, &c., W. J. CURREY, Aide-de-Camp."—This reads like a communication from Gen. Hunter, who is remembered as a strict disciplinarian.

An autograph letter, which I preserve, of Monseigneur Denaut, French Bishop of Quebec, relates also to the same Ensign Cheniquy. We learn from it that the young soldier had been applying in 1803 for admission or re-admission to the Seminary at Quebec, with a view to studying for Holy Orders in the French Church. The letter is in French, and is dated "Quebec, 3 9bre, 1803." "Monsieur," the bishop says, "Je n'ai point d'objection particulière à votre entrée au Seminaire pour y continuer vos études. Je l'ai dejà permis une fois, et vous avez quitté. Voyez M. le Superieur et arrangez-vous ensemble.

Quant à faire de vous un ecclesiastique—cela ne peut avoir lieu qu' après examen fait par Monseigneur de Canathe qui jugera de votre capacité, de vos dispositions, et du temps de vous admettre. Je m'en rapporterai à lui, et sa decision sera la mienne. Je suis &c., ✠ P. Evêque de Quebec."—The Monseigneur de Canathe just mentioned was Joseph Octave Plessis, coadjutor to Bishop Denaut from 1797 to 1806. His Life has been published, and forms a work of great historical interest. I have his autograph also, and it chances likewise to relate to Ensign Cheniquy. A document in the handwriting of Bishop Plessis is by no means a common sight. The language of the paper this time is Latin. First we have a brief certificate of Joseph Cheniquy having attended confession, signed by a presbyter named Demers. "Audivi Jos. Cheniquy. Quebeci, die 3â Maii, 1803. DEMERS, pter." Then in continuation follows Bishop Plessis' testimonial to Cheniquy's orthodoxy: "Quem fidei Catholicæ adhærentem et nullo, quod noverim, censurarum vinculo irretitum omnibus ad quos præsens perveniet schedula testificor. Ego infra scriptus. ✠ J. O. Epūs Canathensis et Co-adjutor Quebecensis, Qubeci, 13 Maii, 1803." The "Demers, presbyter," whose signature appears above, was in his day a man of eminence in the scientific world of Canada. His work, entitled "Institutiones Philosophicæ ad usum studiosæ juventutis," was published at Quebec, in 1835.—Further on, I shall have occasion to give some passages from an autograph letter of Jacob Mountain, the first English Bishop of Quebec.

I introduce here the letter of a Mohawk chief addressed to General Simcoe in England, after his final departure from Upper Canada. It will serve to shew the esteem and veneration in which the general continued to be held among the native tribes and other portions of the people lately under his rule. Liancourt remarked how Governor Simcoe cultivated the good will of the Indians. Joseph Brant was his personal friend. The name of the chief whose letter I am about to give from the original, was John Norton, but known among the Mohawks as Teyoninhokarawen. He is said by some to have been the son of an Indian woman by a Scotchman; but Stone in his Life of Brant puts it the other way, and says that he was the son of a Scotchwoman by an Indian, which does not seem so probable. He passed two years in Scotland in his early boyhood, and moreover received some education in an American college. Stone remarks of him, that next to Thayendanegea, *i. e.* Brant, he was the most distin-

guished of the modern Mohawks. It was he who continued the translation of the Gospels, begun by Brant. The letter of Teyoninhokarawen which I possess is dated at Bath, in England, Dec. 24, 1804. It then proceeds thus:

"Sir: The many important concerns that have occupied your Excellency's time since you left the wilds of Canada to lament your absence, may have left but imperfect traces on your mind of some of its remoter parts and of its inhabitants. But with respect to them, retired and sequestered from the busy world, nothing could intervene to shade from their memories the grateful sense they retain of your benevolent intentions towards them, and the active zeal with which you were ever ready to promote every measure in your power for the welfare of that country and the various descriptions of people therein residing, as also for those out of its boundary, but who ever faithfully adhered to His Majesty's interests and relied on his fatherly protection. Since I have been in Britain," he continues, "I have greatly desired to do myself the honour of waiting on your Excellency. But the distance of your residence, and the business which occupied my attention, caused me to defer from time to time, till lately I came to Bath, when I proposed myself that pleasure; but by a particular arrangement was so soon recalled to London as to put it out of my power for that time. As I now hope to be able to remain for this week at Bath, could your Excellency with propriety and convenience permit me to wait upon you, I would do myself that honour any day you might be pleased to appoint. With the greatest respect, I have the honour to be, &c., JOHN NORTON, Teyoninhokarawen.—P.S. Please to direct to me at Mr. Robert Barclay's, Bath." The peculiar use of the word "Britain" above reveals the Scottish tincture in the chief's education.

Norton, we are told, when in Bath appeared in the Pump Room in Indian costume, and the following scene is said to have occurred. A young Englishman, who had been in America, accosted him, and gave him to understand that he suspected him to be an impostor. Norton calmly assured him to the contrary. "But then," returned the other, "if you really are what you pretend to be, how will you relish returning to the savages of your own country?" "Sir," replied Norton, "I shall not experience so great a change in my society as you imagine; for I find there are savages in this country also."—Norton proved himself a useful ally to England in the war with the United

States in 1812–13–14. He assisted at the capture of Detroit; he was present on Queenston Heights when Brock was killed; he entered Fort Niagara when surprised and taken by Colonel Murray in December, 1814; and again, at the famous night-attack on the United States' camp at Stoney Creek, he was also present. Norton's association with the British officers on these and other occasions gave rise to some wild stories, believed in the United States. One writer reports that Colonel Murray, when he surprised Fort Niagara, entered the fort at the head of 400 British and Indians. James, in his "Military Occurrences of the Late War," &c., corrects the statement by saying there was but one Indian, and he was a Scotchman: meaning, of course, Norton. But doubtless, wherever Norton was, his savages were not far off.

As a companion-piece to Norton's letter, I give another, written also by our educated Indian chief, Captain John Brant, son of Joseph, and his successor as Tekarihogea, or Head Chief of the Mohawks. Its date, however, is so late as 1825. I transcribe from the original. Application is made therein to Colonel Givins, of the Indian Department, for his friendly intervention in behalf of Thomas Davis, Susannah Johnson and Lucy Brant, Grand River Indians, who had suffered losses during the War of 1812. "Their respective claims," Captain Brant says, "have been legally authenticated before William Holme, Esq., of Dumfries; and I believe that they have proceeded in every respect according to the rules of the Commissioners. These claims were transmitted to J. B. Macaulay, Esq., Clerk to the Commissioners, nearly a year since. It is in consequence of the bad state of health of the Hon. Col. Claus," Brant adds, "that Thomas Davis intends to solicit your assistance, and to inquire of Mr. Macaulay if the Commissioners have examined those claims: and also the result of such examination. Any assistance you can render to these people will be gratefully acknowledged by, Dear Sir, your very faithful servant, J. Brant." The letter is dated at Wellington Square, July 5, 1825. This is the J. Brant who, when visiting England in 1821, called on the poet Campbell to retract the language he had used in "Gertrude of Wyoming" in regard to his father, Joseph Brant. Campbell's elaborate reply can be seen at the end of Stone's Life of Joseph Brant. The Mohawk name was Ahyouwaeghs.

The Hon. Col. Claus long filled a large space in the Canadian public view, as Chief Superintendent of Indian affairs. Here is a

letter of his dated Niagara, 6th November, 1806. It is addressed to the same Cheniquy of whom we have already heard. Cheniquy's occupation as a military man was gone, the Canadian Volunteers having been disbanded. Col. Claus alludes to hopes of half-pay fondly but vainly indulged by Cheniquy. He speaks a good word for Gen. Hunter, who was lately deceased. He names also Judge Thorpe, and disapproves of his having presented himself as a candidate for a seat in Parliament. Col. Claus addresses his letter to Cheniquy at Springfield Park, near York. This was the abode of Mr. John Mills Jackson. Col. Claus says,—"Dear Sir, I was favoured with your letter of the 12th ultimo, and I am to acknowledge myself highly flattered with your good wishes for me. I have been unwell, but not seriously so. I hope and at present feel myself to be getting strength every day. I have heard that Mr. Justice Thorpe is offered to the public to represent the Counties of York, Durham, &c. Every man has a right to give his opinion; and I think that Law and Divinity ought to have nothing to do with Politics. * * * There is no report here of the half-pay being allowed to the Canadian Volunteers. As to the truth of it, I cannot say anything about it.—I hope it may be the case. As to General Hunter's administration, what a few idlers and discontented people may say will never affect him. Those who cry out are strangers both to him and his measures, and some who received from him that censure and punishment that they deserved. He was an honest man, which cannot be said of some who make such a noise. I should be happy if I had it in my power to do anything for you. I shall always be happy to hear from you, and believe me, &c., W. Claus." It may be pleasing to know that, through Col. Claus, Cheniquy did obtain (in 1807) an appointment as Collector at St. Joseph, in the Far West. I have a letter of Cheniquy's in which this is implied. Also I have a portion of Cheniquy's Journal as far as Matchedash Bay, *en route* to St. Joseph. In his way up Yonge Street he rested at the Count de Chalûs'. (He speaks of the Count's place as "Windham.")

Having named Judge Thorpe, I am led to give two or three letters from the hands of our early Judges. First I go back in time a little, and transcribe an autograph of Chief Justice Osgoode's, the first Chief Justice of Upper Canada. It is a communication addressed to W. Dummer Powell, Esq., at Detroit, in 1794. Mr. Powell's home was at that place at the time. He had not yet been raised to the

Bench. The Chief Justice writes plaintively of his "solitude" at Niagara: alludes to some mental perplexity which he does not care to commit to paper: refers to projects for the speedy establishment of a Superior Court of Judicature to be stationary at the seat of Government. Among the items relating to current events at the end, he speaks of the pacific tone of certain communications of "Mr. Washington" to Congress. The Chief Justice writes from Navy Hall, the Governor's residence at Niagara, the humble accommodations of which are to be gathered from the regret expressed that it had not been convenient to offer Mr. Powell's son a bed there, except only during the absence of Major Littlehales. I now give the text of the letter:

"Navy Hall: May 2, 1794. Dear Sir: By the report of the Attorney General on his return from Detroit, [this would be Mr. White] as well as the expectation formed by your son on his arrival here, I was flattered with the hopes of seeing you in this quarter during the course of last winter, and had cause to regret the disappointment both from the loss of your company, which would have greatly cheered my solitude, and because I was thereby deprived of an opportunity of conversing with you upon some topic connected with our system of judicature, and perhaps of receiving some insight upon a question that involves a matter of candour with which I confess I am at present somewhat puzzled, and which, if stated upon paper, might lead to a tedious and unavailing discussion. As it seems to suit the general convenience that the Assembly should meet in June, it would not be easy to arrange matters for holding the Western Circuit in spring so as to secure my return in time. I must therefore defer it till autumn. Many circumstances have made it absolutely necessary that some course should be taken to relieve those gentlemen in part who have gratuitously stood forward to administer justice at a time when the country was destitute of professional men, and to carry into effect the institution of that Superior Court which is provided for by the civil estimate of the Province, and the want of which has been openly and repeatedly complained of by the people. For the reasons you formerly detailed, I know that the removal of your family will be attended with much inconvenience, and, without the means, can only wish I had the power of redressing it. In this case the most friendly part I can act is to apprize you, that unless some unforeseen event should occur, a Bill will be brought forward

this Session to establish a Superior Court of Judicature, to be stationary at the Seat of Government; and, till that shall be fixed, to be holden at the last place of meeting of the Assembly. I am sorry it was not in my power to offer a bed to your son except during the absence of Major Littlehales. We have no news from Europe except by way of the States. A copy of the King's speech has found its way here, which continues to insist on the necessity of opposing the measures of the French. No mention is made of the American States; but I am happy to learn, from a recent communication from Mr. Washington to Congress of letters from Mr. Pinkney, that at an interview with Lord Grenville the most pacific professions were made by the Secretary, so that the apprehensions of war begin to subside. I am, Dear Sir, with great esteem, &c., WILLIAM OSGOODE."

It would appear that during the subsequent autumn Mr. Powell had visited Niagara, and had returned rather suddenly to Detroit, with the intention of bringing down his family. Navy Hall was to have afforded them a temporary shelter in the expected absence of the Governor for the winter. But in the meantime some change had occurred in the aspect of public affairs, and it might be expedient for the Governor to pass the winter, after all, at Niagara: also, it might be necessary to quarter a military guard in the spare portion of the Governor's House. The following note was accordingly dispatched. I copy from the original. "Navy Hall, Nov. 14, 1794. DEAR SIR: The critical situation of affairs will in all probability render it necessary for His Excellency to remain at Navy Hall during the ensuing winter, and he may have occasion to quarter troops in that part of the House which was otherwise intended for the temporary accommodation of your family. Under these circumstances, His Excellency has directed me to write to you immediately, to obviate any inconvenience you might else experience. I am, Dear Sir, with regards, &c., E. B. LITTLEHALES.—P.S. Colonel Simcoe was prevented from personally explaining to you what he has directed me to write, owing to your unexpected departure to Detroit."—To this autograph letter of Major Littlehales', it will not be inappropriate to append Liancourt's account of the impression made on himself by that gentleman. "Before I close the article of Niagara," the duke says, "I must make particular mention of the civility shown us by Major Littlehales, Adjutant and first Secretary to the Governor—a well-bred, mild and amiable man, who has the charge of the whole

correspondence of Government, and acquits himself with peculiar ability and application. Major Littlehales appeared to possess the confidence of the country. This is not unfrequently the case with men in place and power; but his worth, politeness, prudence and judgment give this officer peculiar claims to the confidence and respect which he universally enjoys."

In connection with Mr. Powell's first visit to Niagara and the fraternal conferences which, as we have seen, Chief Justice Osgoode in his solitude desired to have with him, I must give the following note from the autograph of the Governor himself: "Col. Simcoe's compliments to Mr. Powell: Mr. Chief Justice Osgoode is to be with him at eleven o'clock, when he shall be happy to present Mr. Powell to him. Sunday morning." Public men, at home and here, were not in 1794 so scrupulous as they are obliged now to be, in regard to utilizing occasionally some of the hours of Sunday for the consideration of affairs of state. In the following year, under date of "4th July, 1795, Saturday morning," we have a note in the handwriting of Major Littlehales, addressed to Mr. Powell, in these words: "Lieut.-Governor Simcoe will be glad to have the pleasure of seeing you to dinner to-morrow at three o'clock, and is the more solicitous in this invitation, as he wishes to converse with you upon business, before or after dinner." And when the King's birthday falls on a Sunday, the Commandant at Fort George does not defer to the following day the dinner to which he invites his friends. Thus: "Major Shank requests the honour of Mr. A. Macnab's company to dinner on Sunday, the 4th of June."

A note of Chief Justice Elmsley (Osgoode's successor) to Mr. Powell, now advanced to be Mr. Justice Powell, exhibits the same peculiarity. It is dated "Sunday morning," and conveys the following queries to Mr. Powell. (They constitute my chief MS. relics of Chief Justice Elmsley). "1. Is their any ordinance or law that has made any alteration in the Penal Law of this Province since the 14th George III., except that which extends Petty Larceny to twenty shillings sterling? 2. By what Proclamation, Ordinance or Law was the Penal Law of England introduced here? for the 14th Geo. III. mentions its having been established near nine years. To these questions," he then says, "allow me to add another of much less importance. Is it the custom to give the Grand Jury a dinner here, as elsewhere?" I happen to possess Mr. Justice Powell's response, in

his autograph. He says: "I know of no law affecting the Penal Code of this Province except the change you mention, extending the value of Petty Larcenies to meet in some measure the depreciation of money. I consider the Criminal Code of England, as it stood in 1774, to be operative here, being then confirmed by statute. Its first introduction was by Proclamation, 1763, extending the Laws of England to all newly acquired conquests, It followed the first Civil Governor's Commission, which was in '65 or '66." He then answers the Chief Justice's inquiry about the dinner. "It has not been customary to entertain the Grand Jury on the Home Circuit, no allowance having been made for the expenses of it to the Officers." Chief Justice Elmsley was afterwards Chief Justice of Lower Canada. A few words of his, penned by him when resident at Quebec, are the following—the mention of five o'clock as the Quebec dinner hour will perhaps redeem them from mere commonplace: "Mr. Elmsley will do himself the honour of waiting on the Bishop of Quebec and Mrs. Mountain at dinner on Friday next, at 5 o'clock." The note is addressed to "Mrs. Mountain, Belmont."

To accompany Chief Justice Elmsley's autographs, I add a passage from an admirably written letter now lying before me, of Mrs. Elmsley, at the time of the date (1825) his widow. It is addressed to Mr. Alexander Wood, and relates to a generous offer that had been made by that gentleman to restore a parcel of land containing fifty acres, to the Elmsley Estate, for a reason which will in these days be considered romantic. In view of the great and unexpected rise in the value of property since the purchase, he feels that he got it altogether too cheap. He therefore desires to hand it back to the Estate, that the Estate, and not himself, might reap the benefit. Mrs. Elmsley firmly declines the proffered advantage in this well-expressed language: "I thought I had not sufficiently remunerated you for the infinite trouble you have had in the care you have taken of the property, by allowing you to *purchase* the lot in question instead of *giving* it, and was much gratified when I heard it had become more valuable. In case you should wish to dispose of it even in this way you were still my *creditor*, for the land became yours at the price it was *then* valued at; and whatever *future* advantages might arise from such property, the increase of value must be yours as much as if you were to receive the benefit of any article in trade. You have done more for me and my family than any one else would

have done; and though I feel your last act of kindness, if possible, more than all past favours, yet I must not tax your friendship at so high a rate. Therefore, pray do not be offended if I decline the benefit you generously proposed, and allow me the gratification of knowing that you have received a trifling profit from what, in fact, is your own to dispose of as you please. The continued friendship of a mind like yours will always afford me more real pleasure than accession of riches; for few, very few indeed, possess such feelings as yours, and such a friend I shall feel the greatest pride in boasting of. I have met with many instances of ingratitude, but your disinterested conduct has a hundredfold overpaid me."

The successor to Chief Justice Elmsley, in Upper Canada, was Chief Justice Allcock. My MS. relic of him is dated from London, 3rd April, 1805. He writes to inform Mr. Justice Powell that "Mr. Robert Thorpe, who succeeded Mr. Cochran at Prince Edward Island, [*i.e.*, as Judge], is appointed his successor in Upper Canada." The vacancy on the Bench in Upper Canada had been occasioned by a singular disaster, by which a judge, a solicitor-general, a sheriff, a high bailiff, a prisoner, witnesses, and others were suddenly engulfed in Lake Ontario in a Government vessel named *The Speedy*, not one person of those on board surviving to tell the tale.—Chief Justice Allcock then goes on to describe to Judge Powell how he has fixed the Circuits. "He [the new judge, Thorpe] is here now, and I have made an arrangement with him about the Circuits of this year, which I hope you will approve of. I shall be obliged [he says] to take the East in my way home, [*i.e.*, from London], as I fear it would be too late to go to the West after my arrival at York. Mr. Thorpe," he then adds, "is going to Prince Edward Island from hence: he expects to sail from thence early in July for York with his family, consisting, I think, of a lady and five children. His arrival at York," continues Mr. Allcock, "depending as mine does, on wind and weather, he agrees to go to Newcastle only, (to which he says he will ride); so that I hope you will have no objection to take Niagara, London and Sandwich.—Mr. Thorpe," he further explains, "much wished to have some place he could ride to this year, as he said his Lady's alarms would be such as to the dangers of the Lake as to injure her materially, if he was to leave her on such an expedition on her first arrival. Under all circumstances," the Chief Justice finally observes, "I could think of no other arrangement."

When *The Speedy* foundered, Mr. Herchmer, a merchant of York, also perished. I have Mr. Herchmer's signature attached to a receipt, which happens to give the amount of municipal tax paid by two citizens of York in 1801. "Received, York, 22nd April, 1801, from Alexander Wood, Esq., for Doct. Burns, the sum of four dollars, being the amount of his Taxes and his brother's. J. HERCHMER, Collector. Doct. Burns, 16*s.*, Alex. Burns, Esq., 4*s.*; total, 20*s.*" One barrister who narrowly escaped drowning in *The Speedy* was Mr. Weekes. He determined, as Mr. Thorpe proposed to do, to "ride" to the vessel's destination, and so saved his life. My specimen of Mr. Weekes' autograph consists of an order for window-glass and putty left with Mr. Wood. He was contemplating building at York. "Please to order from England for me Six Hundred feet of Glass, ten by sixteen inches, and putty sufficient for glazing the same. W. WEEKES. 12th Oct., 1805. Alexander Wood, Esq." In the following year Mr. Weekes was killed in a duel at Niagara.

Chief Justice Allcock's successor was Chief Justice Scott. I have two autograph letters of Mr. Scott. One was written when he was Attorney General, and is addressed to Judge Powell, requesting him to nominate some one to conduct the Crown business in his absence, it being necessary for him to repair to York in consequence of the death of the Lieutenant-Governor, General Hunter. "As the melancholy event," he says, "that hath taken place renders it a duty in me to return to York as soon as possible, I request that you will appoint any gentleman at the Bar whom you may think fit to carry on prosecutions for the Crown, when a person in such a situation may by you be considered as necessary." The other letter was written by Mr. Scott eleven years later, on his being allowed a pension. It is addressed to Governor Gore, and reads thus: "March 30th, 1816. My Dear Sir: I have only time to offer my sincere thanks to your Excellency and the Members of the Legislature. Their generous conduct I see and feel; and I shall ever bear in mind the high obligation they have laid me under. I now return the enclosed according to your request. I am, with great regard, your Excellency's obedient and obliged servant, THOS. SCOTT." The pension was the comfortable one of £800 sterling per annum, as appears from a receipt which I have: it is a printed form filled up, and it runs thus with great and satisfactory particularity: "Upper Canada. Receiver General's Office, York, the third day of January,

1820. Received of George Crookshank, Esq., Acting Receiver General, the sum of Four Hundred and forty-four Pounds eight shillings and tenpence halfpenny, Canada Currency, being my half-year's allowance of Pension from the 1st of July to the 31st of December, 1819, inclusive, at £800 sterling per annum, as late Chief Justice of the Province, granted upon my retirement from the Bench by His Royal Highness the Prince Regent, as signified in Earl Bathurst's letter dated the 18th of June, 1816; pursuant to Lieut.-Governor Sir P. Maitland's warrant No. 22 of this date, having signed five receipts of the same tenor and date.—THOS. SCOTT. £444 8*s.* 10½*d.*, Canada Currency; dollars at 5*s.* each."

I should have noted further back that between Gov. Simcoe and Gov. Hunter came the Administrator, Peter Russell. He was afterwards Receiver General of the Province. Here is his autograph signature, a fine one, attached in that capacity to a receipt, which informs us what was the sum accruing to the public Treasury from Licenses in the Midland District in 1806. "Receiver General's Office, 20th March, 1806. Received from John Cummings, Esq., Inspector for the Midland District, through the hands of Alexander Wood, Esq., Twenty-three pounds twelve shillings and ninepence, Halifax Currency, for account of Duties received on Licenses in that District.—PETER RUSSELL, Receiver General. £23 12*s.* 9*d.*, Hx. Currency; dollars at 5*s.*" Mr. Russell died at York in 1808. I copy the printed card of invitation which was sent to his friends on the occasion of his Funeral, the mem. at its close sounding somewhat strange to us now. "Sir: The favour of your attendance at the Funeral of the late Mr. Russell is requested on Wednesday next, at 2 o'clock precisely. York, 3rd October, 1808. Divine Service and a Funeral Sermon, by the Reverend Mr. Stuart."

Of Governor Gore I have several minute manuscript remains. He was twice Governor of Upper Canada. He departed before the Three Years' War, begun in 1812, and was reappointed when the contest was over. The following is a familiar note to Mr. Justice Powell, 3rd May, 1810. He was just on the start for an inspectional tour, probably. "Dear Sir: I hope to get away on Saturday morning; therefore if you will excuse a short invitation, and take your *supper* with us to-morrow at half-past 5 o'clock, we shall be most happy of your company.—FRANCIS GORE." The italicised *supper* is, I think, a jocose allusion to the use of the word supper for "Tea," common

in the United States and among country people here. Secondly, I produce Mr. Alexander Wood's License to sell Spirituous Liquors, signed by Governor Gore's own hand, with Mr. Allan's receipt as Inspector, for the fees receivable on the same. This is the same Mr. Wood whose scruples about profiting by the great rise in ths value of fifty acres of the Elmsley Estate were noted just now. "Province of Upper Canada. Francis Gore, Lieutenant-Governor of the Province of Upper Canada, &c., &c., &c. To all whom these presents may concern: This License is granted to Alexander Wood, Esq., of the County of York, Home District, Shopkeeper, to utter and sell Wine, Brandy, Rum, or any other spirituous liquors by retail, to be drank out of his house. This License to be in force until the fifth day of January, One thousand eight hundred and eleven; provided that the said Alexander Wood shall observe such rules and regulations as are or shall be made in that behalf. Given under my hand and seal at arms at York, in the County of York, the seventeenth day of January, One thousand eight hundred and ten, in the 50th year of His Majesty's reign.—FRANCIS GORE, Lt.-Governor. By His Excellency's Command: JOHN MCGILL, Inspector-General, Public Provincial Accounts."—"Received from the said Alexander Wood, Esq., the sum of One pound sixteen shillings sterling, being the original statute duty on each License, and likewise the sum of Twenty shillings, lawful money of this Province, being the additional duty imposed on the same by the Legislature.—W. ALLAN, Inspector." The John M'Gill, whose autograph also here appears, is the gentleman from whom M'Gill Street and M'Gill Square, Toronto, have their names. I give one or two more representative relics of Gov. Gore. Here is an extract from a letter to Col. Givins of York, after his final retirement from the Government of Upper Canada. Writing from 15 Lower Grosvenor Place, he says: "I learn that Lord Dalhousie has recommended a Major Darling to succeed to our poor friend Claus. I suppose his Lordship is satisfied with that gentleman's perfect knowledge of the Indian Nations to justify him in preferring him to so important an office. * * If I was a little younger, it would afford me great pleasure to pay you a visit and witness your improvements. My late absence from London prevents me from filling up a letter with the news of the day: the most important event is the hourly expectation of the Duke of York's death. It is quite impossible to describe how universally he is beloved,

not only by the Army, but by every class." The rumour respecting the appointment of Major Darling did not prove to be well-grounded. Col. Givins himself became Col. Claus' successor in the Chief Superintendency of Indian Affairs. A little later, Mr. Gore communicates to Mr. Justice Powell at York an *on dit* of the moment in London, which he evidently thought farcical, and which also did not prove true. "Many thanks for your letter," he says, "and I was about writing to you to tell you that Sir Peregrine Maitland has asked for a twelve month's leave of absence, which is granted: and that Sir Francis Burton has received the appointment of Governor General of British North America!!! I beg you not to mention this latter appointment," Mr. Gore adds, "because Sir Francis begged me not to mention it; and yet it has transpired, although many do not believe it." He closes with a hint which probably had much latent significance: "I should recommend you," he says, "to abstain from making any applications to the Colonial Office at present, but wait till Mr. W. Horton abdicates, which I understand will be about Christmas."

The name of Sir John Harvey, otherwise so greatly distinguished, has an especial interest with Upper Canadians, inasmuch as it was he —at the time Lieut.-Col. Harvey—who planned and so successfully carried out the daring night attack on the enemy's Camp at Stoney Creek on the 5th of June, 1813, by which a most effectual check was given to the progress of invasion. My autograph memorial of Sir John Harvey is the following letter, addressed to Col. Givins; it refers, like another document, already given, to the death of Col. Claus, and to a movement which was set on foot to secure for Col. Givins the succession to the General Superintendency of Indian Affairs—a post for which his long experience with the native tribes, and his knowledge of their languages, peculiarly fitted him. The movement was, as we have already been apprized, successful. "I had not heard" he says, London, 1st Dec., 1826, "of poor Col. Claus' death, nor do I at all know whether it be intended to keep up the appointment he has so long held. If such should be the intention, much attention would doubtless be paid to the recommendations of the authorities in Canada, particularly, I should imagine, as regards Upper Canada, to that of your excellent Lieut.-Governor, [in 1826, this would be Sir John Colborne,] whose support you will, I doubt not, have, and you can require nothing beyond that." Previously,

however, in the letter, Sir John Harvey had said, "I addressed a note to Mr. Horton for Lord Bathurst's information, stating my knowledge of your services in the Indian Department, particularly as they fell under my observation in the late War, in such a manner as may, I trust, be serviceable to you."

When Gov. Gore departed for England in 1811, it was simply on leave. Major General Brock, the Commander of the Forces, became Administrator or President of Upper Canada. Of this distinguished man, soon after slain at the Battle of Queenston Heights, where his noble monument is a conspicuous object, I have an epistolary relic. It is not in any way of a military character, being a letter to the Bishop of Quebec, the first Bishop Mountain, of whom we have before heard. Every one knows that at the outset a close connexion subsisted between Church and State in Upper Canada, often no doubt to the inconvenience and perplexity of both contracting parties. Solemn letters passing between governors and bishops on the subject of missionaries, rectors and ecclesiastical livings, have become curiosities now to us under the modern and much simplified system of a Free Church in a Free State. Bishop Mountain, it appears, had thought it proper to apply to the Administrator of the Government for his opinion as to the advisability of ordaining a certain German Lutheran named Weagant. The Administrator had referred the matter to Dr. Strachan, recently appointed to York. He then replies: "York, Upper Canada, September 24th, 1812. My Lord: I was honoured with your Lordship's letter of the 3rd ult., a fortnight ago, but thinking that it would be more satisfactory to receive a confirmation from Dr. Strachan of the favourable account given by others of Mr. Weagant's character, I have delayed until my arrival here giving an answer. Dr. Strachan is of opinion that Mr. Weagant's abilities and moral conduct entitle him to be admitted into the ministry of our Church, and that he will be of essential benefit to the people among whom he now resides, who generally speak Dutch, in which language he is only competent to officiate. It appears that Mr. Weagant attends at present three places of worship, and it is suggested that he should be required to perform some duties. Allow me to assure your Lordship that I shall at all times be proud to attend to your recommendations, and to express my regret that your Lordship's ill state of health deprived this Province of the advantage of your Lordship's presence. I have the honour to

be, with high respect and consideration, your Lordship's most obedient and very humble servant, ISAAC BROCK, M.G." This letter is wholly in the handwriting of Gen. Brock. As a pendant, I add an extract from a letter by Major Glegg, who was with the general as one of his aides-de-camp at the moment of his death at the base of Queenston Heights. It was written some years later at Quebec to a friend who had congratulated him on a happy windfall in England, which he was about to take possession of. "I thank you," he says, "very sincerely for your congratulations on my late very unexpected good fortune; it is quite true that a distant connexion has left me a very pretty estate in my own county (Cheshire), and in the immediate neighbourhood of all my relations, about seven miles west of Liverpool, and thirteen from Chester, where I shall be truly happy to give you a good day's shooting and a most hearty welcome under my roof. It is my intention to proceed to England soon after the opening of the navigation, proceeding through your Province to New York."

During the Three Years' War, in the course of which Gen. Brock was killed, the church at Niagara was burnt, along with the whole town. Being of stone, however, the walls of the building remained. Some sentences of a letter, now before me, from Mr. Addison, the English clergyman there at the time, to Bishop Mountain of Quebec, will afford an idea of the situation in which the inhabitants found themselves. It is dated at Niagara, 30th Dec., 1815. "I took the liberty," he says, "of recommending the state of our church to your Lordship's protection by Lieut.-Col. Robertson, of the Canadian Fencibles. I now think it my duty to acquaint your Lordship that we have begun to perform the Service in it, and have got, by means of a subscription, three windows and some benches put into it. We are still in a very comfortless situation, and if Government will not assist us, I fear we shall continue so for some time." The three windows here spoken of were not some of "the storied windows richly dight" with which we deck our churches now, but doubtless the most matter-of-fact affairs, simply to answer the primary purpose of windows, viz., the admission of light: the three opposite apertures were probably roughly boarded up. Mr. Addison then expresses some desire to be transferred from Niagara to the London District. "I have been strongly solicited," he says, "by some of my old hearers who have removed to that district, to live amongst them, and should

not feel much disinclined, if such a salary was allowed for visiting the Indians two or three times a month, as would make up for the loss I must sustain in leaving my present situation. I beg leave, however, to assure your Lordship that I wish not to ask any unpleasant favour, for really, my Lord," Mr. Addison pathetically subjoins, "I think it a matter of great indifference where I struggle through the few remaining years of my life."

It having happened just now that Dr. Strachan and Bishop Mountain came before us together, I give here, as examples of their autograph letters respectively, two extracts in which a trifling passage of arms or crossing of pens occurs between them. The Bishop of Quebec was in London at the moment, attending to Canadian Ecclesiastical interests at Downing Street and elsewhere. The Doctor writes to him from York, Upper Canada; and after, among many other things, detailing certain specific advantages which he has heard the Roman Catholics of Upper Canada had lately obtained from the Home Government, he ventures to observe to the Bishop, "It is impossible to look at this statement, my Lord, without inferring that either the Ministers at home, or the Head of the Church in this country, had failed in their duty. It therefore behoves your Lordship to take such steps as shall clear you from any such suspicion, and bring to light your incessant exertions for the increase and prosperity of the Church, (*i.e.* the Church of England in Canada.)" He suggests that the Secretary of State for the Colonies should be moved to dispatch a strong letter to the authorities in Canada in favour of the Church of England; "and if the letter added," he says, "that his Majesty's Government expected the hearty co-operation of men high in office here in promoting the prosperity of the Establishment and affording it every assistance, it would have a wonderful effect. Such a letter," he remarks, not surely with his customary shrewdness, "your Lordship might, I think, very easily procure."

After passing in review the other points in Dr. Strachan's communication, the Bishop takes notice with a good deal of dignity of the words and ideas just quoted. He writes from Hastings, in Sussex: "You tell me, Sir," he says, "that it is impossible to look at this business without inferring that either the Ministers at home or the Head of the Church in Canada had failed in their duty. It therefore (you say) behoves me to take such steps as shall clear me from any such suspicion, &c. These observations may in some degree be

just. I am fully aware that in ordinary minds, or with persons not sufficiently informed of the difficulties to be encountered—the Ministers consider the affairs of the Canadas to be involved in very great difficulties—a want of success will commonly produce the suspicion of a want of due exertion. Yet I do not exactly see the propriety of urging this to me. I must bear these suspicions as I may. The time perhaps will come when the exertions which I have made will be better understood. I shall not remit them; but it is not my intention to make them public at present. I have a very awful responsibility, and I trust that I am duly sensible of it; but what 'it behoves me to do,' under the circumstances in which I am placed, ought in propriety to be left to my own judgment." Then as to the facility with which Ministers might be moved to adopt a particular line of action, the Bishop rejoins: "Ministers will not consider the Ecclesiastical affairs of the Colonies but in conjunction with other matters relating to them, Whenever they do proceed in this business, they will certainly not fail to have before them all that relates to the Reserved Lands, and everything else materially affecting the Establishment and the general interests. But like many other persons at a distance from Courts and Ministers, you mistake extremely in supposing that effectual attention to everything that seems important in the Colonies, and particular directions respecting it, may 'very easily' be obtained here." In his next letter, Dr. Strachan offers many apologies for his "loose manner of expressing himself," which he says was the result of haste,—Col. Talbot, who was to be the bearer of the letter, being kept literally waiting until it should be finished. He then adds: "The great exertions of your Lordship to place the Church in these Provinces upon a more respectable footing do more than equal my expectations, which were not perhaps very moderate. They are not to be measured by their success; but will reflect the greatest credit on the first Bishop of Quebec, when they are once generally known, long after we are all mingled with the dust." Both of these energetic contenders in a cause which it was their office to uphold are now mingled with the dust, and truly their names are held in honour. But the way out of the maze in the perplexities of which they were entangled—how different it finally was from that which they had conceived to be the only one!

But now I must return to secular affairs. When Gen. Brock was killed, the command, civil and military, devolved on Gen. Sheaffe,

The name of Gen. Sheaffe—afterwards Sir Roger Hale Sheaffe—is associated with the history of Toronto. It was he who retired with the remains of the small regular army under his command towards Kingston, when Toronto, then York, was taken and partially sacked by the Congressional invading force. I possess an autograph letter of his. It is addressed to Col. Givins at York, and introduces to him and to us Capt. Basil Hall. "I have the pleasure of introducing to you," Gen. Sheaffe says, "Capt. Basil Hall of the Royal Navy. In granting him the benefit of any kind offices in your power, and in procuring from others any aid that may promote the purposes of his visit to Canada, you will confer an obligation on, yours very truly, R. H. SHEAFFE." This letter is dated Edinburgh, 8th April, 1827.

Capt. Basil Hall's three volumes of Travels in North America in 1827–8 appeared in 1829. He preceded Mrs. Trollope by a few years, and, like that lady, he gave great offence by his criticisms, which, like hers, were not always of the most enlightened kind. An autograph letter which I chance to have of Capt. Hall's relates wholly to America. It is addressed to W. R. Hamilton, Esq., Secretary to or otherwise connected with the Athenæum Club, and it offers some recommendations in regard to the newspapers of the United States some forty years ago. The letter is dated 4 St. James' Place, Wednesday, 23rd June, 1830. "My dear Sir," it proceeds, "in reply to your question about American papers, I beg leave to mention to you, that I think your best plan would be to take one of the New York Tri-weekly Papers, as they are called, and Niles' Weekly Register. The New York Paper will give you all the interesting transatlantic information current at the moment, including as good a report of the Debates in Congress as can be required in this country; while Niles' Register will be found very useful, from its containing all the Reports made to Congress and a great mass of other information pretty well arranged, and carefully indexed. These qualities make Niles' Register a good work of reference; and it is my intention to offer to the Athenæum a complete set from its commencement, I think in 1811, up to 1828. This can easily be completed to the present day; and if the Committee think fit, it may be continued in future as a document to be referred to. With respect to the National Intelligencer, it strikes me that this would be superfluous, if you get Niles' Register and a New York Tri-weekly Paper. When Congress is sitting, indeed, the reports of the Debates are more fully given in the Intelligencer than in any

other Journal, but they are of such length and so peculiarly local, that they are well nigh unintelligible even on the spot. At this distance I can hardly think they would be found interesting or useful by the members of the Athenæum, especially if they had the means of applying to the condensed Reports in a New York Paper. I would venture, therefore, respectfully to recommend to the Committee to order, simply, The New York Enquirer, Tri-weekly, and Niles' Weekly Register. I remain, most truly yours, BASIL HALL."

After the War which was wound up by the Treaty of Ghent, Gov. Gore returned to Upper Canada, as has been already intimated. On his final retirement in 1818, Sir Peregrine Maitland succeeded. But there was a brief interregnum, when President Smith, as senior member of the Executive Council, was at the head of affairs. I shew Col. Smith's hand subscribed to a document which records the allowance made to a Lieutenant-Governor or Administrator, in 1820, "in lieu of fees." Col. Smith's proportion for four months is nicely calculated down to five-tenths of a farthing, sterling,—an expression more dignified than half a farthing would have been. The Prince Regent and Carlton House suddenly come before us in the paper. "Upper Canada, Receiver-General's Office, York, 30th June, 1820. Received from George Crookshank, Esq., Acting Receiver-General of Upper Canada, the sum of One hundred and Ffty-seven Pounds nineteen shillings and four pence and five-tenths of a farthing, sterling, dollars at 4*s.* 6*d.*, being one moiety of a part of the One Thousand Pounds, sterling, per annum, in lieu of fees which have hitherto formed a part of the emoluments of the Lieutenant-Governor of this Province, from the 8th March to the 30th June, 1820, inclusive, as established by His Majesty's warrant, under the sign-manual of His Royal Highness the Prince Regent, bearing date at Carlton House the 29th September, 1812, having signed five receipts of same tenor and date.—SAMUEL SMITH, Administrator."

My first autographic relic of Sir Peregrine Maitland will be a certificate under his hand and seal, guaranteeing the trustworthiness of an attestation given by a Notary Public at York to another document. I select this particular paper because it brings under view a group of names familiar to the early people of Toronto, two of them also, in addition to Sir Peregrine's, autographically inscribed. First we have a copy of a Power of Attorney from William Halton to Duncan Cameron to draw certain moneys. The accuracy of the copy and

the genuineness of the original, with its signatures, are attested by STEPHEN HEWARD, Notary Public. The Lieutenant-Governor adds his testimony to the reliability of the Notary; and Major Hillier subscribes the Governor's certificate as Private Secretary. Preceding Mr. Heward's signature is his Notarial Seal, bearing his name; and preceding the Governor's signature is a seal with the Royal Arms. The witnesses to the original signature of William Halton are D'Arcy Boulton and George S. Boulton. The Governor's certificate is in these terms: "By Sir Peregrine Maitland, K. C. B., Lieutenant-Governor of Upper Canada, Major-General Commanding His Majesty's Forces therein, &c. &c. &c., I do hereby certify that Stephen Heward is a Notary Public, duly admitted in the Province, to whose acts in that capacity entire credit is due. Given under my hand and office-seal at York in Upper Canada, this fourteenth day of January, 1820.—P. MAITLAND. By His Excellency's Command, GEORGE HILLIER, P. S."

My second memorial of Sir Peregrine will be another illustration of that curious interlacing of Church and State which was once expected to be a joy for ever in this country. It is a pleasant letter to Bishop Mountain of Quebec, the prelate whose acquaintance we have formed already. We have in it again the Governor of Upper Canada in the character of a Charlemagne, pointing out the best position for a clergyman, and solving a difficulty in relation to the ownership of a place of worship. Between these two matters of business we have an appropriate reference to the past and present of the aborigines of the country. "My dear Lord," Sir Peregrine says, "I have communicated my sentiments to Archdeacon Stuart respecting the fittest station for the Rev. Mr. Morley. Indeed, I had no hesitation in deciding on the Grand River, as the Mohawks, with whom he has to converse, are in greater numbers, and have more settled habitations there than in any other part of the Province. This subject reminds me," he then proceeds, "of a letter I received from your Lordship long ago, and which, but that I could plead absence from home and indisposition, I should feel ashamed had remained so long unanswered. In that letter your Lordship requests that I would point out to you some source of information relative to the past and present state of the Indian Tribes dispersed over this part of the American Continent. To my intercourse with the Officers of the Indian Department and other persons long resident in this country, I owe the very

limited information I have obtained respecting these tribes, and I am not acquainted with any publication on the subject of which you do not appear to have been in possession." He then adds: "On referring to the Rev. Mr. Myers' application and the Note of Council, it seems to me that Mr. Myers could not take a better step than to offer the Presbyterians to restore to them the sums they subscribed for the building of the Church: this, I think, would remove all difficulties." There are then some family compliments: "Lady Sarah unites with me in felicitating your Lordship and Mrs. Mountain very sincerely on your daughter's marriage, and on the good state of health which both Mrs. Arrabin and her sister seemed to enjoy when we had the pleasure of meeting them. I have the honour to remain, my dear Lord, yours very faithfully, P. MAITLAND." This letter is dated from "The Cottage," *i.e.* Stamford Cottage, July, 1st, 1823. So recently as September 18th, 1873, I noticed in the Bath Chronicle the following sentence: "Several noble families are placed in mourning by the death of Lady Sarah Maitland, daughter of Charles, fourth Duke of Richmond, and aunt of the Countess of Bessborough." This is the same Lady Sarah.

In Sir Peregrine Maitland's day, the Canada Company, which still carries on its operations, was instituted and incorporated. Of its first Chief Commissioner, Mr. Galt, I exhibit two little relics; the first, a note, dated Barn Cottage, Old Brompton, 25th Nov., 1833, addressed to W. Jerdan, Esq., for thirty-four years editor of the Literary Gazette, relating to the affairs of Mr. Picken, deceased, a man of letters, who had, in his day, written a book on the Canadas. "The sudden death of Mr. Picken," he says, "has left his family in very straitened circumstances, and his son has requested me, if you would have the goodness to insert it in the Literary Gazette, to write his character. He likewise tells me that his father has a novel finished, and if he can dispose of it, I have promised to correct the press. The notice in the Gazette would be of great service." The second relic of Mr. Galt is a portion of the manuscript of a story of his, entitled, "Tribulations." I select a passage: "No to waste words, we were by and by married, but for all that she was not your grandmother; for she had not been my gude wife scarcely a twelve-month and a day when she took a kittling in her craig and departed this life at her appointed time with a sore heart—a kink, as it were—leaving me all her residue, which was a great penny, more than

double and aboon for what I married her; but she said I had made the best of husbands, and needed a consolation for the loss of her; so saying, she died, leaving me with the meal, though the basin was taken away."

I show part of a letter in the curious, even, sloping, handwriting of Mr. Widder, so long associated with the Canada Company, with his familiar signature attached. "I have been urged by three successive mails from England, by influential parties, to endeavour to draft some project for a Railway, and Colonization purposes. This I have done, and with the concurrence of favourable circumstances, I believe that success will attend my scheme. I shall require to submit it, as I have previously intimated, to the consideration of *this* Government after I obtain the approbation from home; and as I think my success will be mainly influenced by the scheme having to be dealt with whilst you are a member of the Council, I feel extremly anxious about your continuance therein for two or three months. Believe me, &c., FRED. WIDDER." As a memorial of Mr. Robinson, the Commissioner of the Canada Company, lately deceased, I preserve with care an autograph addressed to him by Sir John Franklin, who, on one of his journeys north, previous to the expedition which proved fatal to him, was the guest of Mr. Robinson at Newmarket. "Dear Sir," Sir John Franklin writes, "you will be glad to learn that we reached the River by eight this morning with all the stores. I feel much indebted to Mr. Beaman for his exertions: without his aid and that of the men under him we should have had to remain some days on the other side of the Portage, as the Contractor had neither Teams nor Cart ready. The former were procured by Mr. Beaman from a farmer, and I have to request you will pay him for their use and charge the sum to the general account. I have just heard that Lieut. Douglas sent off his Batteaux yesterday; but as the wind is strong from N.W., I fear it will be three days before it reaches us: in that case our provision will run short, if Mr. Beaman does not succeed in getting us some on his return, which he will endeavour to do. We have found your Canteen and supplies extremely useful, and feel much obliged for your kindness in letting us have it. Believe me, &c., JOHN FRANKLIN. Monday, 11th April, 1825. Lieut. Back will have to get provisions from you for the men. The Batteaux will be sent back here for them as soon as possible." The river spoken of would be the Holland River, and the other side of the

Portage would indicate Penetanguishene, where Sir John would embark on Lake Huron for the North or North-West.

My first relic of the ruler of Upper Canada who came next after Sir Peregrine Maitland—viz., Sir John Colborne—will be one of an ecclesiastical character again. It is a note addressed to Bishop Mountain of Montreal, son of Bishop Mountain of Quebec, accompanying a paper justificatory of himself in proceeding to establish the famous fifty-seven Rectories. He says: "My dear Lord,—In transmitting to you the accompanying letter respecting the Rectories in Upper Canada, I beg to mention that I have no objection to this communication being forwarded by you to the Colonial Secretary, if you think the explanations will be useful to the cause. I remain, my dear Lord, sincerely yours, J. Colborne." This note is dated Sorel, 14th Oct., 1837. On the same subject, I transcribe a letter to the same Bishop from Chief Justice Robinson, written also at Sorel, in 1837. It reads as follows, and contains, as we shall see, the main reason of Sir John Colborne's recent action: "My dear Bishop,—I am spending a day with Sir John Colborne before commencing my duties on the Eastern Circuit. The Archdeacon made me the bearer of Lord Glenelg's dispatch on the subject of the Rectories, and sent it open that Sir John might see it. It is a bulky document, but I believe it will reach you without subjecting you to the necessity of contributing to the Post Office revenue. I promised Dr. Strachan to see that it was sent to you from hence. Of course you are aware that both in 1817 and in 1825 instructions were sent by the Secretary of State, the latter formally and carefully framed on the Statute authorizing the Lieut.-Governor and Council to erect parsonages, &c., and to endow them; so that the Crown Officers have given their opinion upon a defective, or rather upon an erroneous statement of the case. I am, My dear Lord Bishop, most faithfully yours, J. B. Robinson."

Another epistolary relic which I have of the Governor last named, is dated at Deer Park, near Honiton, Devon, May 24, 1852, written after he had become Lord Seaton. It shows the minute interest still taken in the affairs of the Province formerly under his charge. "I beg to acquaint you," he says to a Canadian correspondent, "with reference to your letter of the 3rd, that I have made Lord Hardinge acquainted with my opinion as to the expediency of the title of the Ordnance Department to the Niagara Reserve being relinquished, to

enable the Town Council to proceed with their proposed Railway improvements, and shall be glad to render any assistance in my power to promote the views of the Memorialists. I have the hononr to be &c., SEATON."

Having given above representative autographs of the two Bishops Mountain, I ought to present one of Bishop Stewart, the second Bishop of Quebec. I accordingly make an extract from a letter written by him while yet a simple missionary. It was addressed from London, in 1823, to Archdeacon Mountain at Quebec. "I have drawn up a subscription paper," he says, "in aid of building Churches in Canada, and of defraying the expense of repairing the Mohawk Church in the Bay of Quinté. I went to the Archbishop yesterday—to Addington—and he gave me £10. He told me that the robbers of Lambeth Palace had carried off very little indeed. I do not see that I can do anything in aid of procuring Bells for the Cathedral. Mr. Davidson promised me, last week, to inquire at the Treasury if there is any prospect of assistance in that quarter. * * You will oblige me by requesting Mr. Malhiot (at your leisure) to examine and air my linen and mattrasses left in my cot at his house, for I wish to preserve them from being spoilt." This Bishop Stewart was a son of the Earl of Galloway.

Sir Francis Head was the successor to Sir John Colborne. I copy a portion of a letter of his, written after his return to England, to a friend in Canada: Lord Durham's Report is referred to in it, and he speaks of being engaged in the construction of a paper on a subject of which he recently knew nothing:—"I have been much occupied," he says, "for the last month in writing an article which will appear in the Quarterly Review on the first of January [1839], on Railroads, or perhaps on the Power of Steam. I was but a tyro in the steam department (as you may well recollect, for you know I nearly blew you up one day in the middle of a long argument) when I was at Toronto. In fact, I knew nothing at all about Railroads, but I was so strongly pressed to write about it, and ignorance was so strongly urged as being no objection whatever, that I at last undertook it. If you should read it, you will see that I fired a shot into Lord Durham, in return for the gun he fired on all preceding governors at his departure from Quebec." I take this occasion to produce an autograph of Lord Durham's, but unfortunately it was written before his famous mission to Canada, and so has no allusion

to Canadian affairs. It is dated Lambton Castle, Dec. 26th, 1834, and is addressed to S. W. Phillips, Esq. It must speak for itself. "Sir," it says, "I have the honour to transmit to you an Address to the King from the Inhabitants of Oban, which I beg you to lay before the Home Secretary for presentation to His Majesty. Your obedient servant, DURHAM."

The name of Sir Francis Head suggests that of William Lyon McKenzie. I have Mr. McKenzie's autograph signature in a copy of Story's Laws of the United States, captured at Montgomery's on Yonge Street in 1837. Leaves are turned down at the Act of 1794 to establish the Post Office and Post Roads within the United States; and in the Act of 1799 to regulate the Collection of Duties on Imports and Tonnage. I have also his name subscribed with his own hand to Scrip for One Dollar, issued by the Provisional Government of Upper Canada in 1837, at Navy Island. I copy the document, which is a printed form only partially filled up: (David Gibson's autograph also appears thereon.) "$1. Provisional Government of Upper Canada, No. 252. Navy Island, Upper Canada, Dec. 27, 1837. Four months after date, the Provisional Government of Upper Canada promise to pay to —— or order, at the City Hall, Toronto, One Dollar, for value received. WM. L. MCKENZIE, Chairman *pro tem.* Ex. Com. Entered by the Secretary, P. H. WATSON. Examined by the Comptroller, DAVID GIBSON." I preserve likewise a blank commission in the "Patriot Army," organized along the frontier in the United States in 1839, ready-signed by H. HAND, Commander-in-Chief of the North-Western Army on Patriot Service in Upper Canada, and endorsed by "John Montgomery," President of the Grand Eagle Chapter of Upper Canada on Patriot Executive Duty, Windsor, Upper Canada, Sep. 26, 1839. ROBERT ROBERTSON, Secretary. A rude woodcut adorns the fly-leaf of this paper of an Eagle soaring aloft and carrying in its claws the British Lion. At the side is the motto "Liberty or Death."

W. Lyon McKenzie's name recalls to Upper Canadians that of Joseph Hume, and his often-quoted letter to Mr. McKenzie on the "baneful domination of the mother-country." I introduce here a note of Mr. Hume's, wholly creditable to him but on quite a foreign subject. It is a communication addressed to a young protegé or relative named Crow, who had been a little wild. The tenor of the document enables us at once to conceive the case. I copy the original.

"38 York Place. 26th March, 1819. Dear James: It was my intention to have seen you immediately after I wrote to Captain Tarbet, but I have been prevented by a press of business. On consulting Captain Tarbet, I think nothing better can be done for you at present than to proceed in his ship, and to put yourself under his orders in every way he may direct; and I am certain he will behave towards you as your conduct may deserve. I have written to your mother to that effect, and I should hope you will see the propriety of implicitly attending to your duty on board, so as to merit the patronage of Captain Tarbet. I have every disposition to give you the same assistance to forward you in life as I have given to your brother Robert and to your cousins. But as your behaviour has not hitherto been such as to deserve that countenance from me which I have given them, it would be highly improper in me to make no distinction. If, under Captain Tarbet's commands, you conduct yourself to merit his approbation and recommendation, I shall be most happy on your return to receive you as I have done your cousins, into my house, and to afford you all the assistance in my power to forward your views in life. But I am confident your own good sense must convince you that you have not behaved as you ought to have done, and that it is absolutely necessary you should have a fair trial, which you will have under Captain Tarbet, of shewing your capability, and of proving the inclination to behave well and to deserve attention. Captain Tarbet will order you such clothes, &c., as he may think you require for the voyage; and I shall have an opportunity of seeing you again before you sail. I am your well-wisher and friend, JOSEPH HUME. Mr. James Crow, Ship *York*." The young sailor, we will hope, weighed well these paternal words, and turned them to profitable account.

Sir George Arthur, who followed Sir Francis Head, was the last Governor of the Province of Upper Canada. His name is before me, subscribed by his own hand, to a long letter addressed to Bishop Mountain of Montreal, from Government House, Toronto, 18th December, 1838. This again is ecclesiastical in tone. The whole paper is in the handwriting of Mr. John Kent, who for a time acted as Private Secretary to Sir George. I transcribe the concluding sentence: "The subjects brought under my consideration by your Lordship's letter I am conscious are of the deepest importance. I will give what attention to them I can bestow at present, and I do

assure you I shall have pleasure in doing so; but I lament there should be occasion to undertake, in the midst of commotions from without and troubles from within, measures which should have been adjusted in the day of tranquillity and of peace. I have the honour to be, &c., GEO. ARTHUR." A preceding paragraph possesses more interest. "I have caused," Sir George says, "the whole subject [of the Upper Canadian Indians] to be fully gone into by the Provincial Secretary, and Mr. Tucker is a gentleman who will feel it to be a conscientious duty to befriend the Indians, and to exert himself to bring their case forward, so as to remedy the past, as far as it admits of remedy, and to provide for the future."

Lord Sydenham carried the reunion of the Provinces of Upper and Lower Canada by judicious pressure brought to bear on the Special Council of the latter and the House of Assembly of the former. I have several autographs of Lord Sydenham's. Here is one signed while yet a Commoner—addressed to a Canadian member of Parliament: "10th December, 1839. My dear Sir: I hear that you made a most admirable speech this morning, which I cannot refrain from thanking you for. I only regret that I had not the pleasure of hearing it. Very truly yours, C. POULETT THOMSON." Here is another written after his elevation to the Peerage. He refers in it to a Periodical about to be brought out at Toronto, having a political object: also to certain land-grants in Garafraxa, a township on the Grand River. It is dated from Government House, Montreal, 28th November, 1841. "My dear Sir: I have yours of the 24th this morning. As the case now stands, the course you propose to adopt in regard to the 'Monthly' is the best, to take an opportunity in the publication of the first number to explain that 'my sanction and patronage' mean the support which I am glad to give to any literary work undertaken upon good principles,—and not a control or responsibility on the part of the Government. After all, the paragraph does not seem to have attracted much criticism, and may not injure the Journal, which was what I feared, or commit the Government. They are a funny people there. They make a great piece of work about the supposed interference of the Government with elections, about which we should care nothing in England, and do not mind an avowal that a Journal is under the sanction and prompting of the Executive. I have a complaint from home about our giving as much as 50-acre allotments in the Garafraxa concern,

and they want them to be reduced to 5 in future. This is too little, but at the same time 50 appears large. Will not 25 do? This, I think, was my original suggestion. Let me know your opinion, and also the *reasons* for 50, if you still think that number ought to be continued. Send me, too, some account of how the thing is proceeding, as you have been up there. They like *facts* at home very much, and *they* tell more than 100 arguments of any other kind. Believe me, my dear Sir, yours very truly, SYDENHAM." Lord Sydenham's very minute hand is difficult to decipher. He did not employ in his signature his full title—SYDENHAM AND TORONTO.

After Lord Sydenham came Sir Charles Bagot as Governor-General. My autograph memorial of him speaks of the Clergy Reserve question, which was not yet settled. The note is addressed to one of his Canadian Ministers, and is dated Friday, March 18, 1843. "I had entirely forgot," he says, "when you were here this morning, that I had transmitted by the last mail to the Colonial Office your own Memorandum upon the Clergy Reserve question; and I conceive therefore that *en attendant* the receipt of Lord Stanley's answer to my dispatch upon the subject, we have precluded ourselves from any further discussion upon the subject. As, however, there are no doubt other points which we have to decide in Council, I will be down to-morrow at 2 o'clock. Yours truly and faithfully, CHAS. BAGOT." I may add another example, addressed to an eminent Canadian legal functionary. It is dated simply "Sunday morning," and then runs thus: "My dear Sir: There appears to be no chance of seeing you excepting on a Sunday, when your Court is not sitting. Can you come and dine here quite quietly to-day: nobody but ourselves. I wish much to have some conversation with you on College matters, which admit of no more delay. I have not had a line from the Bishop. Yours truly and faithfully, CHAS. BAGOT." It was Sir Charles Bagot, it may be recalled, who laid the foundation-stone of King's College, which afterwards was transformed into University College, Toronto.

Of Lord Metcalfe, who came next after Sir Charles Bagot, I have to content myself at present with a sign-manual attached to a marriage-license; and similarly with respect to Lord Cathcart, who administered the Government for a short time.

In addition to the bold ELGIN AND KINCARDINE signature of the Governor-General who then succeeded, I have a note in the third

person wholly in his own free, dashing, gubernatorial handwriting. He speaks therein of the Reciprocity Treaty, names Monklands, the Governor-in-Chief's temporary residence near Montreal, and asks for the draft of a dispatch. "Lord Elgin would wish the Act for the establishment of reciprocal Free Trade with the United States, and the Minute of Council with reference thereto, to be sent to Monklands this evening or to-morrow, Saturday; also the draft of Lord Elgin's dispatch sent a fortnight ago, covering a letter from Mr. Merritt."

Apropos of drafts of dispatches:—I venture to give, from the original, a specimen of the irreverent way in which Secretaries at head-quarters sometimes speak of such things, one to the other The following is from Mr. Governor's Secretary —— to Mr. Provincial Secretary —— of Lord Sydenham's period, I think; and relates possibly to some great State Document which, after due manipulation, influenced subsequently perhaps the destinies of the whole country. "My dear ——: I went to your room to ask you to read the enclosed and found you just gone. I wish you would look it over, if it is not too much trouble, and let me have it, if not to-night, early to-morrow. One point I assume, but you will correct me if I am wrong—that the surplus of £274,000 on the Loan was to go in aid of the Public Works Loan: indeed if it was not, I do not know where it should have gone. The enclosed is a rough draft, so pray have no hesitation in altering or adding to it. It wants a concluding sentence, which I will write afterwards—something about speaking strongly and public duty, &c. &c., and that kind of official balderdash. Yours ever truly, ———. Monday. P.S.—I have added the balderdash."—When we are thus admitted behind the scenes and learn some of the secrets of State, we can enter better into the spirit of old Oxenstiern's observation to his son:—"You are not aware, my child, with how little wisdom the world is governed!"

Of this era is a note which I produce, of Dominick Daly's, afterwards Sir Dominick, and Governor of Prince Edward's Island. He salutes in the following amiable manner his own successor in the post of Provincial Secretary under Lord Elgin, Mr. Sullivan: "My dear Sullivan," he says, "if I may not congratulate *you*, I certainly can the *Public*, upon your having waived your objections, and consenting to fill my late office. Should it happen that my knowledge of the details in any matter can be made available to you, I hope I need

not assure you that it will afford me much pleasure to be in any degree useful to you. So pray command yours, very truly, D. DALY. Champ-de-Mars Street, Saturday, 10th March, 1848."

One more relic of Lord Elgin's day, ere I pass on. The year 1848, it will be remembered, was a memorable one for commotions in Europe. It was not allowed to pass without public trouble threatened to Canada, from the usual quarter. Mr. Barclay, so long the well-known British Consul at New York, had occasion to address the following communication to the proper functionary at Montreal, on the 28th of August, 1848. "Sir: I beg to acquaint you that a large company of persons, sympathizers with the seditious in Canada, left Albany and its vicinity on Saturday morning the 26th instant for Quebec. This information may be relied on as correct. It is derived from the same source as that communicated to you by my letter of the 26th instant, for the use of His Excellency the Governor-General. I have the honour to be, &c., ANTH. BARCLAY."

A sentence or two of Sir Edmund Head's, Lord Elgin's successor, must close for the present my Canadian series. After the requisite number of years, manuscript relics of the Lords Monck, Lisgar and Dufferin, and of several of their respective contemporaries in Canada, will be of equal interest with those which I have now adduced.

I transcribe first from a letter addressed by Sir Edmund to a friend in 1856. It may be observed that Sir Edmund Head's handwriting, while Governor-General, was of a style most appalling to the ordinary reader or copyist. The words are visible enough, with roomy spaces between them. The pen seems usually to have been a soft quill with a broad nib, much worn. But haste ever impelled the hand, and most of the letters are only partially formed. His signature might be anything—the cipher of an eccentric Shah or Padishah. In 1856 Ottawa had not yet been fixed on as the capital of Canada. The Government was still alternating between Toronto and Quebec. In November of this year, Sir Edmund writes to his friend thus: "The open state of the Seat of Government Question is doing harm by aggravating the French and English quarrels, and affording a topic in which four parts out of five can always be brought to bear negatively against any Government." To the same friend we have him expressing, two years later, an opinion on Canadian Confederation—some nine years before Confederation was effected. "I admit," he says, "the union of the Canadas may be difficult to maintain. If it

should go, according to my view the next, indeed the only hope would be the promotion of some Government on a still larger scale, more or less like a federation, which shall gather up the reins and control the St. Lawrence, as well as the Western and Eastern waters. I do not undertake to say," he adds, "that I should be for framing a Government strictly 'federal'—that is, one in which the (?) residue of power belonged to the local governments, and the limited power to the central one. It is possible, nay, probable in my opinion, that the local powers should be the limited ones, and the central power the unlimited one. We start, not from the separate existence of five or six independent states, but from the fact that all are already provinces subject to the same sovereign. All this, I think, matter for grave discussion; full of difficulties, but not therefore impracticable or absurd." In 1856 again we have Sir Edmund, in a letter from Toronto to the same friend, making the following startling observation: "I think," he says, "the Toronto University and its Colleges give about as much trouble as the rest of the Government business put together." Now that the storms alluded to are all over, how pleasant to hear or read these words!

With my literary relics relating to the United States I shall be very brief. I show first a volume from the library of William Penn, a splendid copy of the first edition of Gilbert Wats' translation of Bacon's Instauratio Magna, printed at Oxford in 1640, with Marshall's portrait and mystical title-page; the whole dedicated to Charles I. in a Latin inscription, in which that king is styled "Dominus Virginiæ et Vastorum Territoriorum adjacentium et dispersarum Insularum in Oceano Occidentali." The bookplate therein exhibits the arms of the Penn family, and underneath, the following: "William Penn, Esq., Proprietor of Pensylvania. 1703." The motto is *Dum clavum teneam*, "Let me but hold the helm." The family motto, as given by Burke, is *Dum clavum rectum teneam*, "Let me but hold the helm aright"—which accords with the verse of Ennius, from which the words are borrowed. The omission of *rectum* makes the sentiment savour of ambition. It may be observed that the first syllable of "Pensylvania" has only one *n;* and so the name of the province appears in the older Gazetteers, and in early French works. Penn survived the date on his bookplate fifteen years. On several pages of my copy of the Instauratio there are marginal annotations in manuscript which are probably from the

hand of William Penn. He was, as we know, a scholarly man and a thoughtful student. At p. 29, St. Paul's words, *Devita profanas vocum novitates,* are quoted in Latin in the text: the annotator adds in the margin with a pen the rest of the sentence—*et oppositiones falsi nominis scientiæ.* At p. 277, on the expression, "glasses of steel" in the text, the observation is made—"*speculis ex metallo,* in Lat. edit."—shewing that Gilbert Wats' version of the Instauratio was being compared with the original. At p. 200, "fine wafer-cakes" is erased, and "furmenty" substituted. An allegation in page 262 is declared "false" in the margin.—The great Elm-tree under which the treaty of Penn with the local aborigines was made, long continued to be a venerated object. When, during the war of the Revolution, Col. Simcoe was quartered at Kensington, he so respected it that when his soldiers were cutting down every tree for firewood, he placed a sentry under it, that not a branch of it might be touched. After Montmagny, a distinguished French Governor-in-Chief of Canada, the Indians used, as we know, to style all Governors-in-Chief *Onontio,* i.e. Montmagny, Great Mountain. In the same way the natives who had formed treaties with Penn, styled subsequent Governors of Pennsylvania, *Onas,* i.e. Pen, from the name of the great white man whom they had learned to respect. As the highest compliment which the Indians could pay to Sir William Keith, a Governor in 1722, they said, "We esteem and love you, as if you were William Penn himself."

The last royal Governor of the Province of New York was Major-Gen. Tryon. Happening to possess the original parchment containing his commission as Colonel of the 70th Regiment, I preserve it for two reasons: first, because it bears at its head the sign-manual of George III., some remains of the royal seal, and some other autographs of note; secondly, because the document is to me a kind of visible transition-link between the few relics which I have of the "old colony days" of the southern portion of this continent, and those which I have relating to later American history.

In 1777 Gov. Tryon was seeking release from his troublesome post. The Documentary History of the State of New York, published at Albany in 1859, contains many papers from the pen of Gov. Tryon, and among them is a letter dated at King's Bridge Camp, 3 Oct., 1771, addressed to Lord George Germain, from which I give an extract: "The incidents," he says, "that have occurred to me since

my return to this country, my present situation, and the state of my family affairs, all powerfully invite me to return home. The fee-simple of this vast continent would be no temptation for my residence in a country in which I have struggled through so many scenes of trouble and disappointment, against all which, a principle of pure affection for his Majesty and his Government has, thank God, sustained me." Under date of Whitehall [London], 5 June, 1778, Lord George Germain makes the agreeable announcement to Gov. Tryon, of his appointment to the Colonelcy of the 70th Regiment, and of his elevation to the rank of Major-General. "It was a great pleasure to me," he says, "in the course of last month to have the hononr to lay before the King, for his Majesty's royal signature, a Commission giving you the rank of Major-General in America, according to that you held as Colonel, and which your merit and services so well entitle you to, and upon which, and your appointment to the command of the 70th Regiment, I beg you will accept my congratulations." On the 6th of the following Septemper, Tryon acknowledges the receipt of the two commissions. He says to Lord George Germain: "These most gracious marks of his Majesty's bounty towards me have filled my mind with gratitude for such royal benevolence. I shall most cheerfully serve through this campaign," he continues, "at the expiration of which, unless a very opening prospect should present itself to render some essential service on this continent, I shall entreat the Commander-in-Chief's permission to quit America that I may lay in a better stock of health for future services, and settle my private affairs in England, which daily become more pressing." The parchment instrument, then, which I possess, is one of the documents to which reference is made in the two foregoing extracts. I give it entire, with the royal sign-manual at the beginning, and three other autographs of official persons at the close. "GEORGE R. George the Third, by the Grace of God, King of Great Britain, France and Ireland, Defender of the Faith, &c., to our Trusty and well-beloved William Tryon, Esq., greeting. We, reposing especial trust and confidence in your loyalty, courage and good conduct, do by these presents constitute and appoint you to be Colonel of our Seventieth Regiment of Foot, whereof our Trusty and well-beloved Lieutenant-General Cyrus Trapaud was late Colonel, and likewise to be Captain of a company in our said Regiment. You are therefore to take our said Regiment as Colonel, and the said Company as Captain, into

your care and charge, and duly to exercise as well the officers as soldiers thereof in Arms, and to use your best endeavours to keep them in good Order and Discipline. And We do hereby command them to obey you as their Colonel and Captain respectively. And you are to observe and follow such Orders and Directions from time to time as you shall receive from Us, or any other your superior officer, according to the Rules and Discipline of War in pursuance of the Trust We hereby repose in you. Given at our Court of St. James. the fourteenth day May, 1778, in the Eighteenth year of Our Reign, By His Majesty's Command, WEYMOUTH. Entered with the Secretary at war, M. LEWIS. Entered with the Commissary-General of Musters, JOHN F. HESSE."—At the side of the document appear three half-crown stamps. In 1772 the whole of the western part of the State of New York was included in "Tryon County," a name which was changed after the Revolution to "Montgomery County," after General Richard Montgomery.

Finally I transcribe an interesting letter of General Washington's, which perhaps may have been in print before, although I have never seen it so offered to the public. We are therein transported to Philadelphia in 1782, and we find ourselves in the midst of naval and military movements connected with the War of Independence. It is addressed to Col. Dayton, and reads as follows (he spells "Pensylvania," it will be observe l, as Penn spelt it): "Philadelphia, Jan. 28, 1782. Dear Sir: I have received your favour of the 12th, and am glad to find you have got rid of the person who embarrassed you. Inclosed you have my acceptance of Col. Dehart's resignation, which be pleased to deliver to him. I cannot grant that of Major Hollingshead before he himself signifies a desire of leaving the service. When he does that let him mention the time that he looked upon himself as out of the Army, that his resignation may be dated accordingly. I am of opinion with you that the most flagrant abuses are committed under the cover of flags to and from New York, and am willing to adopt any measures to prevent a continuance of them. I have no papers with me but those of a late date, and therefore cannot refer to the instructions formally given to you upon this subject. If I recollect them they were to put a stop to the practice of Flags going and coming at stated times, and to suffer no persons to go on board or to land from the Boats except those who have proper passports. All letters to be delivered to the Officer on Guard at

Elizabeth Town. If you think this mode, or one similar to it, will answer the purpose, you will carry it into execution and try the effect. Previous to seeing your letter to General Hand, I had heard that there was some uneasiness in the Company stationed at Wyoming, and had determined to relieve it. You will therefore order up a relief as soon as the troops are clothed. I have no new instructions to the officer who is to go upon the command. He will call upon Captain Mitchell for those given to him and follow them. You may give him this general caution, to confine himself to his military duty and avoid intermeddling in the politics of Pensylvania or Connecticut. I am, Dear Sir, your most obt. servt., G. WASHINGTON."—Col. Dayton.

The great contest was drawing to a close. Winners as well as losers were becoming somewhat weary of it, as we may perhaps partly gather from the letter before us. Washington was aware that negotiations for peace were likely soon to commence. He knew, nevertheless, that it was politic to maintain to the latest moment a due preparedness for all issues.

I might give a few words from the hand of Bishop White, the first Anglican bishop in North America, consecrated at Lambeth in 1787; their subject matter, however, would be unimportant.

I exhibit the MS. signature—ABRAHAM LINCOLN; but I do not transcribe the document to which it is attached, that being simply a Military Commission, cancelled. It was "given" at Washington on the 27th of July, 1861. The autograph of the Acting Secretary of War, THOMAS A. SCOTT, likewise appears thereon.

SUMMARY OF RECENT RESEARCHES

ON THE

PALÆONTOLOGY OF THE PROVINCE OF ONTARIO,

WITH BRIEF DESCRIPTIONS OF SOME NEW GENERA.

BY H. ALLEYNE NICHOLSON, M.D., D.Sc., M.A., F.R.S.E.,

Professor of Natural History in University College, Toronto.

I propose this evening to bring before the Institute the results of some inquiries into the Palæontology of Ontario, which I was enabled, chiefly by the liberality of the Government of the Province, to carry out during the last summer. In the course of these inquiries I investigated, more or less carefully, the Clinton, Medina, Niagara, Guelph, Corniferous and Hamilton Formations; but it was to the two latter that my efforts were especially directed, and it is to these that I shall entirely restrict my remarks to-night.

The time and means at my disposal being both limited, I thought it advisable rather to make a careful and prolonged examination of the fauna of a limited district than to make less exhaustive collections from a wider area and from more scattered localities. In accordance with this view, I repeatedly and very carefully examined the various fossiliferous localities in the Corniferous Limestone of Wainfleet, Humberstone and Bertie, in the County of Welland, on the North Shore of Lake Erie. I also visited more hurriedly the same deposits further to the west, as they occur in the Townships of Oneida and Walpole, in the County of Haldimand. And, lastly, I examined the Hamilton Formation in the Townships of Bosanquet and South Williams.

The American geologists, especially Messrs. Hall, Meek and Worthen, have noticed the occurrence in some instances in Western Ontario of Devonian fossils which are known to occur in the United States. The only detailed account, however, which we possess of the Devonian Fossils of Canada West is contained in a series of admirable papers published some years ago in our Journal by Mr. Billings (*Canadian Journal*, New Series, vols. iv., v. and vi.) In these

memoirs, Mr. Billings enumerates one hundred and fourteen species as known to him as occurring in the Devonian Formation of Ontario, and describes one hundred and four of these, a large number being new to science.

Of the forms described by Mr. Billings a considerable number have not come under my notice, owing, no doubt, to my researches having been confined to a comparatively limited area. As the result, however, of my researches, I have now to record one hundred and sixty species of fossils from the Devonian Rocks of Canada, of which forty-nine species appear to be altogether new, and about twenty-six additional species are now first described from Canadian specimens. I am, therefore, enabled to add seventy-five species to the list of the Devonian fossils of Ontario; though, from the condition of the literature appertaining to this subject, it is possible that some of the forms which I have described as new may really be identical with previously recorded species. There is also a number of forms which the materials in my hands do not permit me to identify at present, but which I hope to be able to determine by the aid of future investigations.

The following tables show more precisely the nature of the fossils which have come under my notice:—(In all the tabular lists the letter C indicates that the species occurs in the Corniferous Limestone, whilst H indicates its occurrence in the Hamilton Formation).

I. PROTOZOA.

The remains of Protozoa in the Corniferous Limestone, though not of a very varied nature, are far from uncommon, and constitute quite a marked feature in the Lower Devonian fauna. With the exception of a species of *Astræospongia*, and one or two undetermined forms, they belong entirely to the enigmatical genus *Stromatopora*, or to a genus so closely allied to this as to render any separation at present unadvisable. They may, with the greatest probability, be regarded as belonging to the *Spongida*, though the more typical forms of *Stromatopora* have not as yet been shown to possess some of the more important characters of Sponge-structure. Of the five species of *Stromatopora* which occur in the Corniferous Limestone, one is found in the Hamilton Formation, and all except *S. concentrica*, Goldfuss, appear to be new. The single species of *Astræospongia* is only known by its spicules, and it is probably identical with *A. Hamiltonensis*, Meek and Worthen.

List of Devonian Protozoa.

1. Astræospongia Hamiltonensis, *Meek and Worthen?* (C.)
2. Stromatopora tuberculata, *Nich.* (C.)
3. " perforata, *Nich.* (C.)
4. " granulata, *Nich.* (C. & H.)
5. " mammillata, *Nich.* (C. & H.)
6. " concentrica, *Goldfuss?* (C.)

II. CŒLENTERATA.

Of all the organic remains of the Devonian Rocks of Ontario, and especially of the Corniferous Limestone, none are more conspicuous than the Corals, whether we take into consideration the vast number of individuals or the variety of type which they exhibit. Many parts of the Corniferous Limestone are almost wholly made up of corals; and as these are generally silicified, they weather out of the calcareous matrix in the most beautiful manner, and can be obtained in a state of exquisite preservation. Equally beautiful, if not more so, are the corals which weather out in countless numbers from the soft decomposing shales of the Hamilton Formation. Mr. Billings, in the Memoir already alluded to, estimates the number of corals in the Devonian Rocks of Canada West as probably about eighty, and of these he describes no less than fifty-four. Some of the most striking of these forms, such as the species of *Phillipsastræa*, have not come under my notice in any portion of the Corniferous and Hamilton Formations studied by me. I have, however, to record seventy-one species of Corals, of which thirty-one belong to the *Tabulata*, five are referable to the *Tubulosa*, and thirty-five belong to the great group of the *Rugosa*. The genera represented are twenty-one in number, viz: *Favosites*, *Michelinia*, *Alveolites*, *Fistulipora*, *Callopora*, *Chætetes*, *Syringopora*, *Striatopora*, *Trachypora*, *Aulopora*, *Microcyclus*, *Zaphrentis*, *Blothrophyllum*, *Heliophyllum*, *Clisiophyllum*, *Diphyphyllum*, *Eridophyllum*, *Amplexus*, *Cystiphyllum*, *Haimeophyllum*, and *Petraia*. Of the species, about twelve can be more or less certainly identified with known European species, viz: *Favosites Gothlandica*, *F. hemispherica*, *F. Forbesi*, *F. polymorpha*, *F. dubia*, *F. cervicornis*, *F. reticulata*, *Aulopora tubæformis*, *Diphyphyllum gracile*, *Cystiphyllum vesiculosum*, and *Michelinia convexa*. Besides these, there are others very closely allied to European forms; and some which may perhaps turn out, on fuller investigation, to be nothing more than varieties.

LIST OF DEVONIAN CORALS.

7. Blothrophyllum decorticatum, *Billings* (C.)
8. " approximatum, *Nich.* (C.)
9. Clisiophyllum Oneidaense, *Billings* (C.)
10. " pluriradiale, *Nich.* (C.)
11. Zaphrentis gigantea, *Lesueur* (C.)
12. " fenestrata, *Nich.* (C.)
13. " prolifica, *Billings* (C. & H.)
14. " spatiosa, *Billings* (C.)
15. Heliophyllum Canadense, *Billings* (C.)
16. " Colbornense, *Nich.* (C.)
17. " Cayugaense, *Billings* (C.)
18. " Halli, *Edw. & H.* (C. & H.)
19. " sub-cæspitosum, *Nich.* (H.)
20. " proliferum, *Nich.* (C.)
21. " Eriense, *Billings* (C.)
22. " colligatum, *Billings* (C.)
23. " exiguum, *Billings* (C. & H.)
24. Petraia Logani, *Nich.* (C.)
25. Amplexus Yandelli, *Edw. & H.* (C.)
26. Diphyphyllum arundinaceum, *Billings* (C.)
27. " stramineum, *Billings* (C.)
28. " gracile, *McCoy* (C.)
29. Eridophyllum Simcoense, *Billings* (C.)
30. " Verneuillanum, *Edw. & H.* (C.)
31. Cystiphyllum Senecaense, *Billings* (C.)
32. " grande, *Billings* (C.)
33. " Americanum, *Edw. & H.* (C. & H.)
34. " vesiculosum, *Goldfuss* (C. & H.)
35. " sulcatum, *Billings* (C.)
36. Microcyclus discus, *Meek & Worthen* (H.)
37. Haimeophyllum ordinatum, *Billings* (C.)
38. Syringopora nobilis, *Billings* (C.)
39. " intermedia, *Nich.* (H.)
40. " Hisingeri, *Billings* (C.)
41. " perelegans, *Billings* (C.)
42. " Maclurii, *Billings* (C.)
43. " laxata, *Billings* (C.)
44. Aulopora filiformis, *Billings* (C. & H.)
45. " (?) Canadensis, *Nich.* (C. & H.)
46. " cornuta, *Billings* (C. & H.)
47. " tubæformis, *Goldfuss* (C.)
48. " umbellifera, *Billings* (C.)
49. Favosites Gothlandica, *Lam.* (C. & H.)
50. " basaltica, *Goldfuss?* (C.)
51. " Forbesi, *Edw. & H.* (C.)

52. Favosites hemispherica, *Yandell & Shumard* (C. & H.)
53. " turbinata, *Billings* (C. & H.)
54. " polymorpha, *Goldfuss* (C.)
55. " reticulata, *De Blainville* (C.)
56. " dubia, *De Blainville* (C.)
57. " cervicornis, *De Blainville* (C.)
58. " Chapmani, *Nich.* (C.)
59. Alveolites labiosa, *Billings* (C.)
60. " Rœmeri, *Billings* (C. & H.)
61. " cryptodens, *Billings* (C.)
62. " conferta, *Nich.* (C.)
63. " (Cœnites?) distans, *Nich.* (C.)
64. " ramulosa, *Nich.* (C.)
65. " Billingsi, *Nich.* (C.)
66. " Selwynii, *Nich.* (C.)
67. " Goldfussi, *Billings* (H.)
68. " Fischeri, *Billings* (C. & H.)
69. " frondosa, *Nich* (H.)
70. Striatopora Linneana, *Billings* (H.)
71. Trachypora elegantula, *Billings* (H.)
72. Chætetes moniliformis, *Nich.* (H.)
73. " Barrandi, *Nich.* (H.)
74. " quadrangularis, *Nich.* (H.)
75. Callopora incrassata, *Nich.* (C. & H.)
76. Fistulipora Canadensis, *Billings* (C. & H.)
77. Michelinia convexa, *D'Orbigny* (C.)

III. BRACHIOPODA.

The number of *Brachiopoda* in the Devonian Rocks of Western Ontario is very considerable, but good specimens are not obtainable in many parts of the Corniferous Limestone, and our collection of these fossils is not so complete as that of the Corals. On the other hand, the Brachiopods of the Hamilton Formation, though very rarely exhibiting the characters of the interior, usually occur in a state of beautiful preservation. Altogether, I have identified about forty-three species of *Brachiopoda* from the Devonian formations of Ontario; and these are distributed amongst eighteen genera, viz: *Strophomena*, *Streptorhynchus*, *Orthis*, *Chonetes*, *Productella*, *Spirifera*, *Cyrtina*, *Atrypa*, *Athyris*, *Leiorhynchus*, *Spirigera*, *Retzia*, *Amphigenia*, *Cœlospira*, *Centronella*, *Lingula*, *Pholidops*, and *Crania*. A few of the species (such as *Strophomena rhomboidalis*, *Spirifera mucronata*, and *Atrypa reticularis*) are well known European forms; and others are nearly allied to European species, if not absolutely

identical with them. The greater number, however, are peculiar to the American continent. The only two forms which I have felt myself justified in describing as new are *Productella Eriensis* and *Leiorhynchus Huronensis*.

LIST OF DEVONIAN BRACHIOPODA.

78. Strophomena perplana, *Conrad* (C.)
79. " demissa, *Conrad* (C. & H.)
80. " inequistriata, *Conrad* (C. & H.)
81. " Patersoni, *Hall* (C.)
82. " ampla, *Hall* (C.)
83. " nacrea, *Hall* (C.)
84. " rhomboidalis, *Wahlenberg* (C.)
85. Streptorhynchus Pandora, *Billings* (C.)
86. Orthis Livia, *Billings* (C.)
87. " Vanuxemi, *Hall* (H.)
88. Chonetes lineata, *Vanuxem* (C. & H.)
89. " scitula, *Hall* (H.)
90. " lepida, *Hall* (H.)
91. " mucronata, *Hall* (C.)
92. " hemispherica, *Hall* (C.)
93. " arcuata, *Hall* (C.)
94. " acuti-radiata, *Hall* (C.)
95. Productella Eriensis, *Nich.* (C.)
96. Atrypa reticularis, *Linn.* (C. & H.)
97. " spinosa, *Hall* (C.)
98. Spirifera mucronata, *Conrad* (C. & H.)
99. " varicosa, *Hall* (C.)
100. " duodenaria, *Hall* (C.)
101. " varicosa, *Conrad* (C.)
102. " fimbriata, *Conrad* (C.)
103. " (Amboccelia) umbonata, *Hall* (C.)
104. Cyrtina Hamiltonensis, *Hall* (H.)
105. Spirigera spiriferoides, *Eaton* (C & H.)
106. " rostrata, *Hall* (H.)
107. " scitula, *Hall* (C.)
108. Athyris nasuta, *Conrad* (C.)
109. " (?) Maia, *Billings* (C.)
110. Retzia (?) Eugenia, *Billings* (C.)
111. Leiorhynchus multicosta, *Hall* (H.)
112. " Huronensis, *Nich.* (H.)
113. Amphigenia (Stricklandinia) elongata, *Billings* (C.)
114. Lingula squamiformis, *Phillips?* (C.)
115. " Maida, *Hall?* (C.)
116. Pholidops ovatus, *Hall* (C.)

117. Crania crenistriata, *Hall* (H.)
118. Cœlospira concava, *Hall* (C.)
119. Centronella glans-fagea, *Hall* (C.)
120. " Hecate, *Billings* (C.)

IV. POLYZOA.

The remains of *Polyzoa* in the Devonian Rocks of Western Ontario are very abundant, and they are of unusual interest in many ways. Unfortunately, however, they are for the most part fragmentary, and their study is thus attended with special difficulty, since there is no class of organisms requiring greater skill and patience in their interpretation. Altogether, I have been able to identify nineteen species of *Polyzoa*, of which, owing to the general neglect of this class by palæontologists, no less than fifteen appear to be new, whilst several forms have come to light belonging to new generic types. There remains, however, a considerable number of forms, of which the materials at present in my hands are too fragmentary to justify definitive description. The forms which I have considered myself warranted in describing belong to the following genera:—*Fenestella*, *Retepora*, *Polypora*, *Cryptopora*, *Carinopora*, *Taeniopora*, *Ceriopora* (?), *Botryllopora*, *Ptilodictya*, and *Clathropora*. The first three of these genera are typical members of the family of the *Fenestellidæ*, and they comprise more than one-half of the total number of species identified. It is to these genera also that most of the undeterminable fragments belong, so that the *Fenestellidæ* must have had a very great development in the Devonian period in North America. The genera *Cryptopora* and *Carinopora*, now characterized for the first time, also belong to the *Fenestellidæ*; but they exhibit many extraordinary and, indeed, altogether unprecedented points of structure. The last two genera, as well as *Taeniopora* and *Botryllopora*, present many points of special interest; and as they are all new generic types, it may be as well that a brief diagnosis of each should be given here:—

1. Cryptopora, gen. nov.—Polyzoary, forming a rigid, infundibuliform, calcareous expansion, springing from a strong, solid branching root-stock or rhizome. Exterior of the cœnœcium forming a continuous, non-perforated, thin, calcareous membrane, internal to which is a second or intermediate layer, the two being composed of the amalgamated and coalescent branches ("interstices"). The intermediate layer is marked by shallow, longitudinal, and bifurcating sulci, corresponding with the lines between the branches, and its

surface, where decorticated, exhibits reticulating lines which correspond with the bases or proximal ends of the cells. The internal surface of the intermediate layer carries the cells, which are flask-shaped, and are arranged in double rows, forming flexuous lines enclosing oval interspaces, just as in *Retepora*. The oval interspaces, however, instead of constituting so many "fenestrules," are the bases of so many pillars which proceed perpendicularly inwards, across a central space, to join with an internal calcareous membrane which forms the innermost lining of the funnel-shaped frond. It follows from the above that the mouths of the cells in *Cryptopora* neither open on the exterior of the frond, as in *Fenestella* and *Hemitrypa*, nor open on the interior of the polyzoary, as is the case in the infundibuliform species of *Retepora*. On the contrary, we have in this remarkable genus the unique arrangement that both the internal and external aspects of the funnel-shaped frond are to all appearance closed by a continuous calcareous membrane. The cells, therefore, are not placed upon either of the free surfaces of the polyzoary, but open into a central space between these two membranes. The limiting membranes of this space are kept apart by a system of pillars which are directed at right angles to the plane of growth of the frond, and correspond in position with the fenestrules of a *Retepora*. The water must have been admitted to this central space, and thus to the cells, by openings in the free edge of the infundibuliform polyzoary. The only species of this genus known to me occurs in the Corniferous Limestone, and I have named it *Cryptopora mirabilis*.

2. Carinopora, gen. nov.—Polyzoary infundibuliform, calcareous, and reticulated. The external layer of the cyathiform frond is composed of regularly undulated flexuous branches, which anastomose with one another after the manner of a *Retepora*, so as to form a series of oval fenestrules. Externally, the branches are angulated or sub-carinate, and are smooth and non-celluliferous. Internally, each branch gives origin to an enormously developed keel or vertical lamina, which corresponds in direction with the branch, and which is directed inwards towards the centre of the funnel. The inner face of the frond thus presents a series of narrow, elevated, parallel ridges, separated by deep grooves, at the bottom of which both the cells and the fenestrules open. In parts of the frond, however, these grooves appear to be rendered vesicular by means of a series of delicate calcareous laminæ, which connect together the opposing sides of contiguous

ridges or keels. In some cases, also, the inner ends of the keels are connected together by an apparently continuous calcareous membrane, so that the inner surface of the frond is completely closed. The cells are carried in alternating double rows upon the inner surface of each branch, their mouths appearing to be situated at the bottom of the grooves afore-mentioned, and at the base of the great keel which springs from each branch internally. No cells are carried on the areas formed by the anastomosis of contiguous branches.

I have only seen a single, very large, and well-preserved example of this genus, which occurs in the Corniferous Limestone. I have named it *Carinopora Hindei*, in honour of Mr. George Jennings Hinde, by whom it was discovered, and who placed it in my hands for examination.

3. TAENIOPORA, gen. nov.—Polyzoary calcareous, composed of a flattened linear expansion, which branches dichotomously and is celluliferous on both sides. Each side of the polyzoary is furnished with a strong median ridge or keel, which has a longitudinal direction, and separates the frond into two lateral halves. The cells have prominent mouths, and are arranged in from three to five longitudinal rows on each side of the central keel, the cells of contiguous rows alternating in such a manner as to produce a series of short, oblique rows of cells, which diverge from the keel like the barbs of a feather. The margins of the polozoary are usually plain and non-celluliferous, and the cells are not separated by longitudinal striæ or elevated ridges. No fenestrules are present, and the entire frond forms a continuous expansion, within which the cells are immersed.

Taeniopora is distinguished from *Ptilodictya* by wanting the laminar axis of the latter, by the possession of a longitudinal mesial keel on each side, by having prominent cell-mouths, and by not having the cells arranged in rows enclosed by elevated longitudinal striæ.

Two species of the genus, *T. exigua* and *T. penniformis*, have come under my notice as occurring in the Hamilton Rocks of Western Ontario.

4. BOTRYLLOPORA, gen. nov.—Polyzoary calcareous, sessile and encrusting, forming systems of small circular discs, which, though social, are not organically connected or confluent. The upper surfaces of the discs are marked with prominent radiating ridges, which carry the cells. Each disc is attached by its entire lower surface,

slighly convex above, with a central non-poriferous space, round which the radiating poriferous ridges occupy an exterior slightly elevated zone. Cells forming a double row on each ridge, immersed, with rounded mouths which are not elevated in any part of their circumference above the general surface.

In some respects *Botryllopora* is allied to *Defrancia;* but the cells are not tubular, and are not free in any portion of their extent, whilst the latter genus does not appear to have ever been detected in rocks older than the Jurassic. I am only acquainted with a single species of the genus, which is found growing upon corals in the Hamilton Formation, and which I have named *Botryllopora socialis.*

List of Devonian Polyzoa.

121. Botryllopora socialis, *Nich.* (H.)
122. Ceriopora ? Hamiltonensis, *Nich.* (H.)
123. Ptilodictya Meeki, *Nich.* (C. & H.)
124. Polypora pulchella, *Nich.* (C.)
125. " Halliana, *Prout* (C.)
126. " tenella, *Nich.* (C.)
127. " tuberculata, *Nich.* (H.)
128. Retepora prisca, *Goldfuss* (C. & H.)
129. " Phillipsi, *Nich.* (C.)
130. Cryptopora mirabilis, *Nich.* (C.)
131. Fenestella magnifica, *Nich.* (C.)
132. " marginalis, *Nich.* (C.)
133. " cribrosa, *Hall* (H.)
134. " tenuiceps, *Hall* (C. & H.)
135. " filiformis, *Nich.* (C.)
136. Taeniopora exigua, *Nich.* (H.)
137. " penniformis, *Nich.* (H.)
138. Carinopora Hindei, *Nich.* (C.)
139. Clathropora intertexta, *Nich.* (C.)

V. LAMELLIBRANCHIATA.

Mr. Billings states that he has met with about twenty species of *Lamellibranchiata* in the Corniferous Limestone of Western Ontario, and of these he describes and names one, viz., *Vanuxemia Tomkinsi* (*Canadian Journal*, New Series, vol. vi. p. 357). This species I have not seen, and the only Lamellibranch that I have met with either in the Corniferous Limestone or the Hamilton Group of Ontario is the well-known *Conocardium trigonale*, Hall, which is not of uncommon occurrence, though usually found in a very fragmentary condition.

VI. PTEROPODA.

The only Pteropod which is yielded, so far as I know, by the Corniferous and Hamilton formations of Ontario, is a species of *Tentaculites*, which occurs in great abundance in the latter. It is nearly allied to *T. annulatus*, Schloth., and *T. ornatus*, Sow., but does not appear to be quite identical with either; and I have in the meanwhile left it unidentified.

VII. GASTEROPODA.

The number of *Gasteropoda* in the Devonian Rocks of Western Canada is very considerable, and this is especially the case as regards the Corniferous Limestone. By far the majority of specimens, however, occur in the state of casts, with little or none of the original surface preserved, often crushed or mutilated in different ways; and it is thus often impossible to determine their true affinities, or to decide with certainty to what species they may belong. I have thus been compelled to leave altogether unnoticed a number of univalves, of which nothing definite can be made out with the materials that I possess at present; whilst the determinations actually recorded must be regarded as for the most part more or less doubtful. The only Gasteropod that has come under my notice from the Hamilton Formation is a small *Platyceras*, which may be a variety of *P. dumosum*. Other species of the same genus occur in the Corniferous Limestone, one of these being new, whilst another is the well-known *P. ventricosum*, Conrad, and the others are not determinable with certainty. The genus *Platyostoma* is represented by the familiar *P. ventricosa*, Conrad; and there are several apparently new forms which I have referred more or less doubtfully to *Strophostylus*, *Holopea*, and *Helicotoma*.

List of Devonian Gasteropoda.

142. Platyceras ventricosum, *Conrad* (C.)
143. " intermedium, *Hall?* (C.)
144. " sp. (C.)
145. " sp. (C.)
146. " uniseriale, *Nich.* (C.)
147. " dumosum, var. rarispinum, *Hall?* (H.)
148. Platyostoma ventricosa, *Conrad* (C.)
149. Strophostylus? sub-globosus, *Nich.* (C.)
150. " ? ovatus, *Nich.* (C.)

151. Strophostylus? obliquus, *Nich.* (C.)
152. Holopea Eriensis, *Nich.* (C.)
153. Helicotoma? serotina, *Nich.* (C.)

VIII. ANNELIDA.

The remains of *Annelida*, though far from uncommon in the Devonian Rocks of Ontario, are entirely referable, so far as my observation has gone, to the genera *Spirorbis* and *Ortonia;* though there are not wanting indications of the occurrence of genuine *Serpulæ* or *Vermiliæ*. Of the two species of *Spirorbis* which have come under my notice, one is the *S. omphalodes* of Goldfuss, a form which occurs in the Devonian Rocks of Europe, whilst the other I cannot indentify at present with any recorded form, and have, therefore, described as new under the name of *S. Arkonensis*. The genus *Ortonia*, which I established for some Tubicular Annelides from the Lower Silurian Rocks, and which has since been detected in the Carboniferous Rocks of Scotland, is represented by a single new species.

List of Devonian Annelida.

154. Spirorbis omphalodes, *Goldfuss* (H. & C.)
155. " Arkonensis, *Nich.* (H.)
156. Ortonia intermedia, *Nich.* (H.)

IX. CRUSTACEA.

The remains of Crustacea are by no means uncommon in both the Corniferous Limestone and the Hamilton group of Ontario; but they are for the most part ill-preserved and fragmentary, and I have only been able to identify with certainty the following species, already well-known from the Devonian Rocks of the State of New York. Besides these, our collections include fragments of some five or six additional species of Trilobites, which I am at present unable to satisfactorily identify.

List of Devonian Crustacea.

157. Proetus crassimarginatus, *Hall* (C.)
158. Dalmanites Boothii, *Green* (H.)
159. Phacops rana, *Green* (C. & H.)
160. Cythere (?) punctulifera, *Hall* (H.)

NOTES ON THE FOSSILS

OF THE

CLINTON, NIAGARA AND GUELPH FORMATIONS OF ONTARIO,

WITH DESCRIPTIONS OF NEW SPECIES.

BY H. ALLEYNE NICHOLSON, M.D., D.Sc., F.R.S.E.,
Professor of Natural History in University College, Toronto,
AND
GEORGE JENNINGS HINDE, Esq.

In the present communication we propose to note the different species of fossils which we have met with in our examination of the Clinton, Niagara and Guelph formations, as displayed in Western Ontario. Many of the localities in which these formations occur, have, as a matter of course, not been visited by us, and our lists are therefore necessarily imperfect, and are to be regarded as merely a preliminary contribution to a more complete and extended enumeration. Not a few indeed of the forms previously recorded from these formations by the Geological Survey of Canada have escaped our notice. On the other hand, we have a considerable number of species which have not until now been recognized as occurring in Canada, whilst we have a few which appear to be altogether new, and which we shall, therefore, describe in detail.

I.—FOSSILS OF THE CLINTON FORMATION.

1. Buthotrephis gracilis, Hall. (*Ref. Buthotrephis gracilis*, Hall, Pal. N.Y. Vol. II., pl. v. and v. bis). Specimens, in all essential respects identical with the obscure fossils figured by Hall under this name, are far from uncommon in the Clinton Group. They are chiefly referable to the forms described under the titles of var. *intermedia* and var *crassa*, and present themselves as branching flexuous bodies, sometimes in the form of hollow moulds or casts, at other

times in the form of flattened impressions, differing in colour and texture from the matrix in which they occur. That these enigmatical bodies branch, after a more or less regular fashion, is indubitable, and it does not appear possible that they should have been produced by Annelides or other marine animals. If they are plants, however, their affinities are doubtful, and their mode of preservation very obscure.

Locality and Formation.—Clinton Group, Dundas and Hamilton.

2. SCOLITHUS VERTICALIS, Hall. (*Ref.* Pal. N.Y. Vol. II., pl. iii. fig. 3.) This species is founded upon vertical circular tubes, sometimes slightly curved, which penetrate the strata more or less in a perpendicular direction, and which open on the surfaces of the laminæ of deposition by regular rounded apertures. The average diameter of the burrows is about one line, and their vertical extent is unknown. Often they are hollow; at other times they are more or less filled up with loose peroxide of iron; or they may be completely filled up with sediment, when they present themselves as smooth, rounded or cylindrical, vertical stems. That they are truly Annelide burrows can hardly be doubted. They differ from *Scolithus linearis*, Hall, in their smaller dimensions, and from *S. Canadensis*, Billings, in not having an expanded aperture, and in apparently not being curved towards their lower ends. The species is recorded by Hall from the thick-bedded sandstones of the Medina Group, of Monroe County, State of New York; but our examples are from ahigher horizon.

Locality and Formation.—Clinton Group, Dundas.

3. ARENICOLITES SPARSUS, Salter. (*Ref.* Quart. Journ. Geol. Soc. Vol. xiii. p. 203). Paired burrows, with circular and comparatively remote apertures, are not infrequent in the Clinton Group. They vary considerably in size; but they do not appear to be separable from *A. sparsus*, of Salter, which commences in the Lower Cambrian Rocks of the Longmynd, and is also not very rare in the Skiddaw Slates of the North of England. The mouths of the burrows vary from half a line to rather more than a line in diameter, and they are usually placed about a line apart.

Locality and Formation.—Clinton Group, Dundas.

Genus PLANOLITES. (Nicholson).

(Gr. *planos*, a wanderer; *lithos*, stone.)

This name was formerly proposed by one of us (Nicholson, Contributions to the Study of the Errant Annelides of the Older Palæozoic

Rocks: Abstract, Proceedings of the Royal Society, No. 144, 1873.) for a group of fossils of constant occurrence in the sandy and shaly sediments of the Palæozoic Rocks, and consisting of the filled-up burrows of marine Annelides, more or less nearly allied to the existing Lob-worms. These burrows are not vertical as in *Scolithus*, *Histioderma*, *Arenicolites* and the like, but they are irregular in their course and direction, sometimes being more or less horizontal, then running obliquely, and then perhaps taking a vertical direction for a space. The actual burrows themselves are not now preserved to us, but we have in their stead the *fillings* of the burrows, consisting, in general if not universally, of the sand and silt which has actually been passed by the worm through its alimentary canal. The fossils referred to *Planolites* consist, therefore, of *casts* of the burrows of marine worms formed by the ejecta of the animal, and they appear usually in the form of cylindrical or flattened stem-like bodies, which are often more or less matted together, and which may cross one another in every imaginable direction. From the filled-up burrows of *Scolithus* (which have actually been "burrows of habitation"), the burrows of *Planolites* are readily distinguished by the fact, that though they often pass obliquely to the bedding so as to penetrate several layers of the rock, they are usually more or less nearly horizontal, and they are never vertical except for a short distance at some abrupt bend in their course.

The genus *Planolites* includes a large number of the supposed vegetable fossils fron the Palæozoic Rocks which have been referred to the genera *Palæophycus* and *Chondrites*.

4. Planolites vulgaris, Nicholson. (*Ref.* Proc. Roy. Soc. No. 144, 1873). Fossil consisting of the casts of tortuous worm-tubes, which are usually of an irregularly cylindrical form, sometimes thickened in parts, and varying from a line to two or three lines in diameter. Surface smooth.

Specimens referable to this widely diffused and variable species are common in the Clinton Rocks. They agree doubtless with some of the species of *Palæophycus* described by Hall and Billings from the Silurian Rocks of North America; but they are undoubtedly casts of the burrows of Annelides, and it seems better to abstain at present from any attempt to found separate species upon the innumerable varieties which they present.

Locality and Formation.—Clinton Group, Dundas.

5. STROMATOPORA HINDEI, Nicholson. (*Ref.* Annals and Magazine of Natural History, Jan., 1874.) The Clinton beds of Owen Sound yield examples of a *Stromatopora* which show no internal structure, but which exhibit large rounded oscula, and which thus appear to be referable to the above species, originally described from the Niagara Limestone of the same district.

6. *Zaphrentis Stokesi*, Edw. and Haime. (*Ref.* Polypiers Foss. des Terr. Pal. pl. iii. fig. 9.) Common in the Clinton Group at Owen Sound. Also, or a nearly allied but smaller form, at Dundas.

7. FAVOSITES, sp.—A small hemispheric mass, with remarkably round thick-walled tubes, which are of nearly equal size throughout, and have a diameter of about two-thirds of a line. Tabulæ flat and tolerably remote. Allied to *F. Gothlandica*, Lam., but apparently distinct.

Locality and Formation.—Clinton Group, Owen Sound.

8. HELIOLITES, sp.—Closely allied to and probably identical with *H. interstincta*, Wahl., but too much metamorphosed to permit of specific determination.

Locality and Formation.—Clinton Group, Owen Sound.

9. CHÆTETES LYCOPERDON, Say. (*Ref.* Hall, Pal. N.Y., Vol. I., pl. xxiii., fig. 2 and pl. xxiv. fig. 1*g*, also Pal. N.Y., Vol. II., pl. xvii. figs. 1*g*–1*k*.) The massive and convex examples of *Chætetes* which Hall places under *C. lycoperdon*, and which are now generally regarded as belonging to *C. petropolitanus*, Pander, have not come under our notice as occurring in the Clinton Group, though recorded in this position by Hall. On the other hand, the ramose examples which would appear properly to constitute *C. lycoperdon*, and which are probably identical with *Chætetes Fletcheri*, Edw. and H., are far from uncommon. They consist of cylindrical or sub-cylindrical branching or sub-palmate coralla, composed of numerous cylindrical or prismatic corallites which radiate obliquely from an imaginary central axis, and open on the surface by polygonal, oval, or circular calices. The walls of the corallites are thin, and there are about eight calices in the space of one line. The calices are for the most part of equal size, and there are no elevations or "mamelons" occupied by corallites of larger size than the average. The diameter of the branches varies from one to three lines.

Locality and Formation.—Clinton Group, Dundas.

10. Chætetes, sp.—A branching form nearly allied to the preceding, but differing in the much larger size of the corallites, of which only four or five occupy the space of one line. We are at present unable to identify this species, but it is nearly allied to a Devonian species (*C. Barrandi*, Nich.) and is certainly distinct from *C. lycoperdon.*

Locality and Formation.—Clinton Group, Dundas.

11. Glyptocrinus plumosus, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xli., A, figs. 3*a–g.*) Owen Sound and Dundas.

12. Helopora fragilis, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xviii., figs. 3*a–f.*) Polyzoary composed of cylindrical stems, which have a length of from a line and a half to three lines, and a diameter of from a third of a line to half a line. Usually the stems are quite straight or slightly curved proximally, very rarely branched, and very generally tapering towards the base and thickened into a swollen, rounded, or clavate distal extremity. Cells tubular, springing obliquely in a radiating manner from an imaginary central axis, and opening at the surface by oval or sub-angular mouths, the lower lips of which are, in perfect specimens, somewhat prominent. About ten or twelve cells in the space of a line measured vertically. The cells are arranged in longitudinal rows, those of contiguous rows alternating with one another, so as to give rise to a series of diagonally spiral rows. According to Hall, the cells are arranged between longitudinal lines which are elevated above the general surface, but this character does not appear to be universally recognisable.

In many respects this curious little form presents a close resemblance to the more slender examples of *Chætetes* or *Stenopora*, from which, indeed, it is chiefly separable by the absence of *tabulæ* and by its general form.

Locality and Formation.—Clinton Group, Dundas (exceedingly abundant).

13. Rhinopora verrucosa, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xix., figs. 1*a–c.*) Polyzoary forming laminar expansions, in some instances of a funnel-shaped form, which are celluliferous on the two sides, and have a thickness of from a hundredth of an inch to a third of a line. The surface is in general even, but is sometimes traversed by irregular anastomosing and reticulating ridges, and it exhibits

the mouths of the cells, which are quincuncially arranged. The cell mouths are strongly elevated above the surface, and have the form of rounded pustules, perforated centrally by a minute circular aperture surrounded by a thickened lip. About five cells occupy the space of one line, and they are separated from one another by about their own diameter.

Locality and Formation.—Abundant in the Clinton Group at Dundas.

14. PHÆNOPORA ENSIFORMIS, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xviii., figs. 8*a–c.*) Polyzoary forming a thin flattened expansion of an ensiform shape, curved and tapering towards the base, and varying in length from half an inch to one inch. Cells arranged in longitudinal rows, separated by elevated longitudinal thread-like lines, the number of rows increasing as we proceed from the base towards the proximal end. Apertures of the cells oval or oblong, alternating in contiguous rows, about seven in the space of one line measured longitudinally. No striated and non-celluliferous marginal zones appear to exist; but none of our specimens exhibit the internal structure; and we are therefore uncertain whether the species should not really be referred to *Ptilodictya.*

Locality and Formation.—Common, though usually fragmentary, in the Clinton Group at Dundas.

15. PTILODICTYA CRASSA, Hall. (*Ref. Stictopora crassa,* Hall, Pal. N.Y., Vol. II., pl. xviii., figs. 4*a–c.*) Polyzoary composed of linear flattened expansions which branch dichotomously at short intervals, and have a width of from a line to a line and a half. Cell mouths long-oval, arranged in longitudinal rows, about five in a line measured vertically, and seven or eight in the same space measured transversely. According to Hall, the margin of each cell-aperture is surrounded by a shallow groove, which gives the surface a striated appearance; but this feature has not been observed by us. The margins do not appear to exhibit a distinct striated and non-celluliferous border; and as the internal structure is still unknown, there is some doubt if the species is truly referable to *Ptilodictya.*

Locality and Formation.—Clinton Group, Dundas.

16. PTILODICTYA (?) RARIPORA, Hall. (*Ref. Stictopora raripora,* Hall, Pal. N.Y., pl. xviii., figs. 5*a–c.*) Polyzoary composed of small sub-cylindrical branching stems, about half a line in diameter. Cells

large, three rows occupying the width of the stem, the apertures oval, about four in the space of one line measured longitudinally, and six in the same space measured transversely. The cells are arranged in longitudinal alternating rows, and their apertures are surrounded by thick but not elevated margins. The rows of cells are not separated by elevated lines; there are certainly no non-celluliferous, striated marginal zones or borders to the frond, and there is no evidence as to the existence of a central laminar axis. It is thus more than doubtful if the species can be referred to *Ptilodictya*; but in the absence of any certain knowledge as to its internal structure, its generic affinities must remain uncertain.

Locality and Formation.—Rare in the Clinton Group at Dundas.

17. Fenestella tenuis, Hall. (*Ref.* Pal. N. Y. Vol. II. pl. xix. 5*a–c.*) Fragments of this species are not uncommon in the Clinton group at Dundas, but they are ill-preserved, and their more minute characters can not be made out.

18. Ptilodictya punctata, Nicholson and Hinde. Polyzoary forming a thin flattened expansion, or explanate frond, which probably had a circular form when perfect. Cells arranged in sub-alternate rows, separated by elevated thread-like ridges, which are curved in such a manner as to lead to the belief that the rows of cells were concentrically disposed of round a central point. Mouths of the cells nearly circular, from seven to eight in the space of one line measured across the rows, and about five in the same space measured longitudinally or in the direction of the rows. The cells are separated in a longitudinal direction by well marked spaces, which are occupied by from three to six minute rounded pores, the apertures of as many small cells. No such pores are to be detected on the longitudinal ridges which separate the rows of cells, or on the lateral aspects of them.

Fig. 1.—*Ptilodictya (?) punctata*, Nich. & Hinde. A, A fragment enlarged; B, Part of the same still further enlarged. From the Clinton Group.

The internal structure of this singular fossil cannot be made out, and its generic affinities are thus uncertain. Only one side of the

cœnœcium is known; it is therefore uncertain whether both aspects were celluliferous or not. So far as can be judged, the fossil is a *Ptilodictya* belonging to the same group as *P. excellens* and *P. superba*, Billings, in which the ends of the cells are separated by minutely poriferous interspaces—a group which will probably be found to be of at least sub-generic value. It is, however, just possible that the larger openings in the cœnœcium are not the apertures of cells, but actual perforations passing through the whole thickness of the frond, in which case the fossil would be a very aberrant member of the *Fenestellidæ*. There is, however, no direct evidence to support this view; and but for the porous or punctate intercellular spaces, the fossil has all the characters and appearance of one of the explanate *Ptilodictyæ*.

Locality and Formation.—Clinton Group, Dundas.

19. Leptocœlia plano-convexa, Hall. (*Ref. Atrypa plano-convexa*, Pal. N.Y., Vol. II., pl. xxiii., figs. 11*a–h.*) Abundant in the Clinton Group at Dundas and Hamilton.

20. Atrypa naviformis, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xxiv., figs. 1*a–k.*) Dundas.

21. Atrypa reticularis, Linn. Dundas.

22. Rhynchonella neglecta, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xxiii., figs. 4*a–f*, and pl. lvii., figs. 1*a–p.*) Dundas.

23. Orthis elegantula, Dalman.—Dundas and Owen Sound.

24. Orthis calligramma var. Davidsoni, De Verneuil. Dundas.

25. Orthis flabellulum, Sowerby (?). Dundas.

26. Leptæna sericea, Sowerby. Dundas and Hamilton.

27. Strophomena rhomboidalis, Wahlenberg. Owen Sound.

28. Avicula alata, Hall. (*Ref. Posidonia*(*?*) *alata.* Hall. Pal. N.Y., Vol. II., pl. xxvii., fig. 4). Dundas.

29. Modiolopsis orthonota, Conrad. (*Ref. Modiolopsis orthonota*, Hall. Pal. N.Y., Vol. II., pl. iv., figs. 1*a–c*). Dundas.

30. Ctenodonta, sp.—Casts of a small but undeterminable *Ctenodonta* are of common occurrence in the earthy hæmatite of the Clinton Group at Dundas.

31. Tentaculites distans, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xli. A. figs. 9*a–c*). Tube straight, conical, from six to eight lines in length, and about one line in diameter near the mouth. Annulations

remote, nearly or quite half a line apart near the mouth, and about a third of a line apart near the middle (from four to five in the space of one line and a half). Spaces between the annulations marked with close-set, sharp longitudinal striæ. This species is readily distinguished by the remoteness of the annulations, and the longitudinally-striated interspaces.

Locality and Formation.—Rare in the Clinton Group, Dundas.

32. TENTACULITES NEGLECTUS, Nicholson and Hinde. Tube straight, conical, about three lines in length, and two-thirds of a line in diameter at the mouth. Annulations five in the space of one line near the mouth, and nine in the same space at the small end of the tube. Spaces between the annulations marked by fine sharp longitudinal striæ.

This species is referable to the same section of *Tentaculites* as *T. distans*, Hall, and *T. Sterlingensis*, Meek & Worthen; but it is distinguished from the former by its smaller size and much more closely approximated annulations, and from the latter by its straight, not curved, form, its smaller size, and its closer annulations. The walls of the tube appear to have been of more than usual tenuity, as it generally is found in a crushed condition in its upper portion. The longitudinal striæ are confined to the spaces between the rings, and do not encroach upon the annulations themselves.

Locality and Formation.—Clinton Group, Dundas. Not very uncommon.

33. MURCHISONIA SUBULATA, Conrad. (*Ref. Murchisonia subulata*, Hall, Pal. N.Y., Vol. II., pl. xxviii., figs. 7*a–d.*) Dundas.

34. PLATYOSTOMA NIAGARENSIS, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. lx., figs. 1*a–v.*) Dundas.

35. CALYMENE BLUMENBACHII, Brongniart. Dundas.

II.—FOSSILS OF THE NIAGARA FORMATION.

36. STROMATOPORA STRIATELLA, D'Orbigny. The species of *Stromatopora* which has usually been quoted from the Niagara Limestone is the *S. concentrica* of Goldfuss. Whilst not denying its possible occurrence on this horizon, all the examples which have come under our notice are referable to the *S. striatella*, D'Orbigny, a species which is nearly allied to *S. concentrica*, but is readily distinguished by its much more delicate and closely set laminæ.

Locality and Formation.—Common in the Niagara Limestone of Thorold. Rare at Rockwood.

37. Stromatopora Hindei, Nicholson. (*Ref.* Annals of Natural History, Jan., 1874.) Owen Sound.

38. Halysites catenularia, Linnæus.—The Niagara Limestone yields this species in great abundance. Different examples vary immensely both as regards the size of the meshes of the network, and still more as to the size of the individual corallites. Thus, examples occur, on the one hand, in which the long diameter of the corallites is no more than one-third of a line, whilst others, on the other hand, have a long diameter of one line and three quarters, or more than five times as great. Nevertheless, too many intermediate forms occur to allow us to suppose these to be other than varieties of a single species. The examples here included under the above name comprise both *H. catenularia* and *H. escharoides*, as characterized by Milne Edwards and Haime.

Locality and Formation.—Owen Sound and Rockwood. Niagara Limestone.

39. Halysites agglomerata, Hall. (*Ref. Catenipora agglomerata*, Hall, Pal. N.Y., Vol. II., pl. xxxv., figs. 2*a–g.*) This form appears to us to be rightly separated from *H. catenularia*, with which it is united by Edwards and Haime. It is distinguished chiefly by the general form of the corallum, and by the fact that adjoining corallites are separated by transversely-septate interspaces.

Locality and Formation.—Niagara Limestone, Rockwood.

40. Heliolites interstincta, Wahlenberg. (*Ref. Heliolites pyriformis?* Pal. N.Y., Vol. II., pl. xxxvi. A. figs. 1*a–m.*) Owen Sound.

41. Favosites Gothlandica, Lamarck. (*F. Niagarensis*, Hall. Pal. N.Y., Vol. II., pl. xxxiv. A. figs. 4*a–i.*) Specimens undistinguishable from this species are not uncommon in the Niagara Limestone, though not so abundant as *F. venusta.* The corallites usually average one line in diameter, though there are always smaller ones intercalated amongst the larger; and the septa are commonly represented by spiniform projections.

In the Niagara Limestone of Owen Sound occur specimens which attain much larger dimensions than is ordinarily the case with *F. Gothlandica.* In these examples, the corallites are hexagonal, with a normal diameter of from two and a-half to three lines, and in some instances with a long diameter of from four to five lines; the

average diameter in *F. Gothlandica* being about one line. The mural pores are of large size, in two or three rows, the third row sometimes occupying the prismatic angles of the corallites. The tabulæ are for the most part horizontal, not curved, about seven in the space of two lines. It is uncertain whether this form is new or not, and in the latter case whether it is to be regarded as an extremely large variety of *F. Gothlandica* or *F. favosa*, Goldf.

Locality and Formation.—Niagara Limestone, Rockwood, Thorold, Owen Sound.

42. Favosites favosa, Goldfuss. (*Ref. Calamopora favosa*, Goldfuss, Petref. Germ. pl. xxvi. figs. 2*a–e*.) The corallum in this species is massive and in all essential respects quite like *F. Gothlandica*, except for the fact that the tabulæ are strongly and uniformly curved, with their convexities directed upwards. The corallites are prismatic, from one line to one and a half lines in diameter; the tabulæ are about six in the space of two lines; the mural pores are in two alternating rows upon the faces of the corallites; and the septa are represented by spiniform projections. The very large examples above referred to may possibly be a variety of this species, though wanting the distinguishing feature that the tabulæ are curved.

Locality and Formation.—Niagara Limestone, Owen Sound.

43. Favosites venusta, Hall. (*Ref. Astrocerium venustum*, Hall, Pal. N.Y., Vol. II., pl. xxxiv., figs. 1*a–i*.) The genus *Astrocerium*, Hall, cannot be retained, as its distinguishing character, viz., the possession of spiniform septa, is shared by *Favosites;* but the present species appears nevertheless to be a valid one. It forms large hemispheric or spherical masses, which are usually composed of a succession of concentric layers. The corallites are slender and variable in size, prismatic or polygonal, rapidly increasing in number by fission. The larger corallites are usually about half a line across; but they have many smaller ones intercalated amongst them, the diameter of which varies from the fiftieth of an inch to half a line. The calices are hexagonal, polygonal, or sub-cylindrical, and our specimens show only rudimentary septa, in form of very short spiniform projections. The tabulæ are complete, straight or flexuous, four or six in the space of one line. The mural pores are not determinable.

There can be little doubt as to the distinctness of this species from *F. Gothlandica*, the much smaller size of the corallites alone constituting a good ground of separation. It most resembles the *F. hemi-*

spherica of the Devonian, but it is distinguished by its complete and more remote tabulæ and by its mode of growth.

Locality and Formation.—Common and attaining a large size, in the Niagara Limestone at Rockwood.

44. FAVOSITES (?) MULTIPORA, Hall. (*Ref. Cladopora multipora*, Hall, Pal. N.Y., Vol. II., pl. xxxix., figs. 1*a–g ; non Favosites multipora*, Lonsdale.) The Niagara Limestone of Ontario yields various forms, which are referable to the genus founded by Hall under the name of *Cladopora*, and characterized by him as follows :

"Ramose or reticulate ; branches cylindrical or slightly compressed, terminations terete ; coral composed of a series of tubes or cells radiating equally on all sides from the axis, and opening upon the surface in rounded or sub-angular expanded mouths ; cells more or less closely arranged but not always contiguous, and apparently destitute of septa or rays."

We are unable, so far as our specimens enable us to judge, to separate the forms referred to *Cladopora* from *Favosites*. The chief point relied upon by Hall in separating the two genera, is the supposed absence in the former of tabulæ and mural pores. This would be amply sufficient, if it could be proved that these structures are really wanting ; but this is not the case. Thus, we have examined some hundreds of well preserved specimens of *Favosites dubia*, De Blain., *F. reticulata*, De Blain., and *F. polymorpha*, Gold., from the Corniferous Limestone, without meeting with more than two or three examples in which either the tabulæ or the mural pores could be detected. It is therefore quite possible, judging from their state of preservation, that the Niagara Limestone specimens referred to *Cladopora* also at one time possessed tabulæ and mural pores, and that these structures have simply been obliterated by the process of fossilization. The prominence of the lower lip of the calice is likewise a character common to the above quoted species of *Favosites*, and cannot be used to define *Cladopora*. So far, therefore, as our materials permit us to come to a decision, we are of opinion that most, if not all, of the species of Hall's genus *Cladopora* are truly to be regarded as ramose species of *Favosites*.

If this view be established by more extended researches, the present species will have to change its name, since the specific title "multipora" has been already pre-occupied by Lonsdale for a different species of *Favosites*. In this case we would propose to call the present species *Favosites Halliana*.

The characters of the species are as follows:—Corallum ramose, the branches cylindrical, nearly a line and a half in diameter, dividing dichotomously at intervals of three lines and upwards, sometimes inosculating. Corallites oblique to the axis of the branches, moderately thick-walled, in contact with one another. Calices circular or polygonal, sometimes wider than long, from four to five in the space of a line measured vertically or diagonally, the lower lip of the aperture slightly or not at all prominent. For the most part the calices are of the same size, but sometimes smaller ones are intercalated amongst the others.

The species is distinguished from the more slender forms of *Favosites dubia*, De Blain., and *F. reticulata*, De Blain., by the much greater closeness of the calices and the comparatively thin walls of the corallites. In other respects no difference can be pointed out between our Niagara examples and specimens of the last mentioned forms from the Corniferous Limestone. From *Chætetes* the species is separated by the thicker walls of the corallites and the form and aspect of the calices.

Milne Edwards and Haime identify *Cladopora multipora*, Hall, with *Alveolites* (?) *seriatoporoides*, Edw. and H., which is certainly not an *Alveolites*, and which is distinguished by its abundant cœnenchyma, its vertical corallites, and the arrangement of the calices in nearly vertical rows. We cannot, however, accept this identification, since our examples, as well as those figured and described by Hall, have no true cœnenchyma, have corallites with a slight but well marked obliquity, and have not got the cells arranged in vertical rows, but rather in obliquely transverse rows.

Locality and Formation.—Niagara Limestone, Rockwood and Thorold.

45. FAVOSITES (?) SERIATA, Hall. (*Ref. Cladopora seriata*, Hall, Pal. N.Y., Vol. II., pl. xxxviii., figs. 1*a–m.*) Two or three specimens in our collections have the mode of growth of this species, but in other respects differ little or not at all from the preceding. It is perhaps doubtful, indeed, if the distinctions between *Cladopora multipora*, *C. seriata*, *C. cæspitosa*, *C. cervicornis*, and *C. macrophora*, Hall, are of specific value; but as we have not access to authentic specimens, and as Hall only in the case of the first of these gives any measurements, we are unable to decide this point.

Milne Edwards and Haime identify *Cladopora seriata*, Hall, with *Alveolites repens*, which it much resembles in general form and mode of growth. We have not seen any authentic specimens of the latter, but, judging from their figures and description, its calices are entirely unlike those of the former in their characters.

Locality and Formation.—Niagara Limestone, Rockwood.

46. Favosites dubia, De Blainville (?)—The Niagara Limestone of Rockwood yields examples of a form which may, perhaps, be referable to one of the species of Hall's genus *Cladopora*, but which appears to us to be altogether inseparable from certain slender branching corals which occur abundantly in the Corniferous Limestone, and which we have been in the habit of regarding as the young of *Favosites dubia*, De Blain. In this form the corallum is composed of slender cylindrical stems which have a diameter of from three quarters of a line to a line and a quarter, and which divide at short intervals without anastomosis. The corallites have thick walls, and the calices are polygonal, circular, or transversely oval, about three in the space of one line measured diagonally or vertically. In perfect specimens the lower lip of the calice is decidedly prominent, but the calices are nearly of equal size.

In the larger and more typical specimens of the *F. dubia*, such as occur in the Devonian Rocks, there are very small corallites interspersed amongst the larger ones. This character, however, is not conspicuous in the small specimens from the Corniferous Limestone which appear to be referable to this species, nor can it be detected in the Niagara examples. It hardly seems, in the absence of any other distinctive character, to be a point of specific value.

Locality and Formation.—Niagara Limestone, Rockwood.

Genus CŒNITES. (Eichwald.)

(= *Limaria*, Steininger.)

Generic Characters.—Corallum encrusting, massive, or sometimes ramose, extremely like *Alveolites*, but having the corallites remote, embedded in a cœnenchyma, or with walls so thick and fused together as to simulate a cœnenchyma. Calices triangular, crescentic, or lunate, usually prominent, and generally furnished with one or more projecting teeth. Tabulæ distinct, mural pores large and few.

The Niagara Limestone of Ontario has yielded to our researches the following two species of *Cœnites*.

47. Cœnites laminata, Hall. (*Ref. Limaria laminata,* Hall, Pal. N.Y., Vol. II., pl. xxxix. figs. 6*a–d.*) Corallum encrusting or massive, the calices somewhat crescentic, with two prominent rounded teeth in the concave side of the crescent. (Fig. 2*e.*) Calices not prominent, about one-third of a line in their long diameter, and one-sixth of a line across, separated by about their length; six or seven in the space of two lines on an average.

The calices appear to be separated by a well developed cœnenchyma; but it is probable that this is only an appearance, and that it is really due to the great thickening of the walls of the corallites and their amalgamation with one another.

Locality and Formation.—Niagara Limestone, Rockwood.

48. Cœnites lunata, Nicholson and Hinde. Corallum forming a thin crust, apparently about two-thirds of a line in thickness. Calices strongly curved, crescentic or lunate, their form being due to the projection into their cavity of a single strong rounded tooth developed from the concave lip. (Fig. 2, *b* and *c.*) Calices about one-fourth of a line in their long diameter, and one-eighth of a line across; eight in the space of two lines. Corallites perpendicular to the surface, appearing as if embedded in a dense cœnenchyma, though this is most probably due simply to the great thickening of their walls.

Fig. 2.—*a,* Fragment of *Cœnites lunata,* Nich. and Hinde, natural size; *b,* Portion of the same enlarged; *c,* Single calice of the same still further enlarged; *d,* Fragments of *Cœnites laminata,* Hall, natural size; *e,* Single corallite of the same enlarged. From the Niagara Limestone.

Of all the described species of the genus, *C. lunata* is most nearly allied to *C. laminata,* Hall; but it is distinguished by the smaller size of the calices, their more markedly crescentic form, and the possession of a single rounded calicine tooth instead of two such.

Locality and Formation.—Niagara Limestone, Owen Sound.

49. Striatopora flexuosa, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xl. B, figs. 1*a–e.*) Not uncommon in the Niagara Limestone of Thorold.

50. Alveolites Fischeri, Billings. (*Ref. Canadian Journal,* New Series, Vol. V., p. 256, fig. 6.) From the Niagara Limestone

of Owen Sound we have obtained several examples of an *Alveolites*, which in general characters and dimensions resembles *A. Fischeri*, Billings, of the Corniferous and Hamilton Formations, and which we are unable to separate specifically from this form. The corallum forms a thin laminar expansion about one line in thickness, celluliferous on the two sides, and either continuous or rarely partially reticulated. The calices are transversely oval or sub-triangular, usually with one curved and one straight side, sometimes with one curved and two straight sides. The long diameter of the calices is from one-third of a line to half a line, and they are separated from one another by about the same distance.

Locality and Formation.—Niagara Limestone, Owen Sound.

51. ALVEOLITES NIAGARENSIS, Nicholson and Hinde. Corallum dendroid, branches cylindrical, about two lines in diameter, dividing dichotomously. Calices small, distinctly triangular, with the apex of the triangle directed downwards, about six in the space of two lines. The upper side of each calice carries a single prominent septal tooth in the form of a vertical plate, which is placed in the median plane of the aperture, dividing it into equal halves and giving it an almost crescentic appearance.

FIG. 3.—*Alveolites Niagarensis*, Nich. and Hinde. *a*, Fragment, of the natural size; *b*, Small portion enlarged; *c*, Single calice still further enlarged.

We cannot identify this with any previously recorded form, though it bears a general resemblance to more than one known species. It is most nearly allied to *A. labiosa*, Billings, from the Corniferous Limestone. All the unquestionable examples of the latter which we have examined show, however, no septal teeth at all; whilst one or two specimens which we have doubtfully referred to *A. labiosa*, and which possess a single vertical septal ridge on the upper side of the calice, have this ridge placed altogether on one side instead of centrally.

Locality and Formation.—Niagara Limestone, Rockwood.

Genus ASTRÆOPHYLLUM. ((Nicholson and Hinde.)

Corallum aggregate, composed of slender cylindrical corallites, united laterally by numerous successive mural expansions or hori-

zontal outgrowths of the calice, which are placed at the same level in contiguous corallites and form a series of complete floors. Walls of the theca complete and well developed, meeting in the centre of the theca with a distinct and well developed columella. Costal radii prolonged over the successive exothecal floors. Tabulæ rudimentary or absent (?).

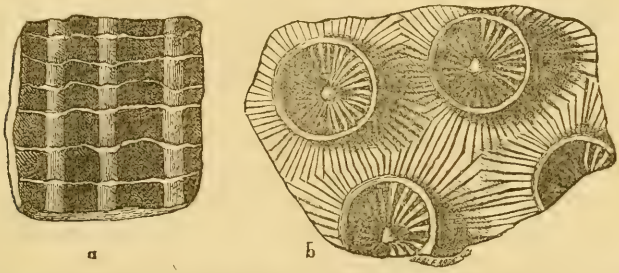

FIG. 4.—*Astræophyllum gracile*, Nich. and Hinde; *a*, Side view of a fragment, enlarged, shewing the mural expansions; *b*, Fragment viewed from above and greatly enlarged, showing the calices, the confluent mural expansions, and the costal radii.

There are some points in the structure of the corals here referred to which we cannot actually make out with the materials at present in our hands; and we are therefore uncertain whether they really constitute a new genus, though we cannot place them under any genus already described.

From *Smithia*, Edw. and H., the genus *Astræophyllum* is distinguished by the possession of a distinct columella, and by the fact that the corallites are united not only by costal radii, but by well developed exothecal floors.

From *Phillipsastræa*, the present genus is distinguished by not having the corallites united laterally along their whole length, and in having the calices definitely circumscribed.

From *Haimeophyllum*, Billings, the genus is separated by the well developed, not rudimentary, septa, and by the fact that the latter possesses vesicular tabulæ.

From *Heliophyllum colligatum*, Billings, which probably forms the type of a separate group, *Astræophyllum* is distinguished by the possession of a distinct columella, and the apparent absence of septal spines or tabulæ.

From *Thecostegites*, Edw. and H., the genus is distinguished by its well developed septa und columella, and the apparently obsolete

tabulæ. Lastly, *Astræophyllum* is distinguished from *Cannapora*, Hall, by the possession of a columella, and the apparent absence of tabulæ.

52. ASTRÆOPHYLLUM GRACILE, Nicholson and Hinde. This being the only known species of the genus, the generic characters form part of the specific description. In addition to these characters, however, the corallites are cylindrical, and about three quarters of a line in diameter, placed at distances apart of two lines, less or more. The calices are expanded, about two lines in diameter, deep, with a prominent columella. The septa are from twenty-six to thirty in number, unequally developed, the greater number apparently reaching the centre. The mural expansions are nearly horizontal, from two to four in the space of two lines measured vertically, placed at the same levels throughout the mass. At the last formed surface, the calices project slightly above the layer formed by the coalescent mural expansions; and this layer is traversed by radiating ridges corresponding with the septa of the corallites. The calices, however, are circumscribed by very distinct and well developed walls.

The upper surface of the coral somewhat resembles, on a small scale, that of *Heliophyllum colligatum*, Billings; but the mural expansions and costal radii are confluent, and are not marked off for each corallite as they are in the latter. The mural expansions are variable in number, sometimes very close, at other times remote. Owing to the silicification of the specimens, it cannot be determined what are the characters of the free edges of the septa, nor whether rudimentary tabulæ may not be present, though no signs of the latter can be detected. In *Heliophyllum colligatum*, on the other hand, there is a well marked central tabulate area.

Locality and Formation.—Common in the Niagara Limestone, Owen Sound.

53. CANNAPORA ANNULATA, Nicholson and Hinde. Corallum aggregate, composed of numerous slender cylindrical corallites, which form flattened expansions or crusts, and are united together by exothecal growths. Corallites from half a line to nearly one line in diameter, usually the former, nearly in contact, about four or five in the space of two lines. The corallites are strongly annulated with close-set annulations, which are developed into so many mural expansions which unite together contiguous tubes. About four of these annulations and expansions in the space of one line. Tabulæ well developed

and close-set. Septa distinct but rudimentary, only extending a short distance into the theca, about twelve in number in each corallite.

Cannapora annulata is closely allied to *C. junciformis*, Hall, from the horizon of the Clinton Group. The latter species, however, has the mural expansions placed at intervals of about a tenth of an inch apart; so that there are only ten in the space of an inch, instead of between forty and fifty, as in the present species. Our examples, also, do not appear to have attained anything like the dimensions of *C. junciformis*, the corallites rarely exceeding half an inch in height.

Locality and Formation.—Niagara Limestone, Owen Sound.

54. SYRINGOPORA RETIFORMIS, Billings. (*Ref.* Canadian Naturalist, Vol. III., p. 424). This beautiful species is of common occurrence, and attains a large size in the Niagara Limestone of Owen Sound. Specimens often show the radiating septa very distinctly, much more so than is usually the case in this genus.

55. ZAPHRENTIS RŒMERI, Edw. and H. Niagara Limestone, Owen Sound.

56. ZAPHRENTIS STOKESI, Edw. and H. Niagara Limestone, Owen Sound.

57. ZAPHRENTIS (CANINIA) BILATERALIS, Hall. Niagara Limestone Owen Sound and Niagara River.

58. CYSTIPHYLLUM VESICULOSUM, Goldfuss. Transverse sections of a *Cystiphyllum*, probably referable to this species, are not uncommon in the Niagara Limestone at Thorold.

59. PETRAIA PYGMÆA, Billings. Niagara Limestone, Thorold.

60. DIPHYPHYLLUM (DIPLOPHYLLUM) CÆSPITOSUM, Hall. Common in the Niagara Limestone at Thorold.

61. CARYOCRINUS ORNATUS, Hall. Niagara Limestone, Thorold and Niagara River.

62. DICTYONEMA GRACILE, Hall. Niagara Limestone, Hamilton.

63. CLATHROPORA FRONDOSA, Hall. It seems certain that Prof. Hall has included under this name two quite distinct species. The one which we have met with in the Niagara Limestone has the frond perforated with rounded perforations of comparatively small size. (*See* Pal. N.Y., Vol. II., pl. lx., B., fig 5*b*). The perforations are not more than from half a line to three-fifths of a line in diameter,

and are placed at intervals of from a line and a quarter to a line and a half, about fourteen rows of cells occupying the space of one line measured transversely. The name of *C. frondosa* should be restricted to forms agreeing with the above measurements. On the other hand, the forms with perforations varying from one line to a line and a half in diameter (*see* Pal. N.Y., Vol. II., pl. xl., B., fig 5*a*) have elsewhere been described by one of us, from Devonian specimens, under the name of *Clathropora intertexta.*

Locality and Formation.—Niagara Limestone, Thorold. Not uncommon and attaining a large size.

64. Clathropora intermedia, Nicholson and Hinde.—Polyzoary forming a spreading expansion which is celluliferous on the two sides, and is perforated by a series of rounded perforations which are arranged in regularly diagonal lines. Perforations somewhat irregular in size, oval or circular, usually from two-thirds of a line to a line in diameter. Intervals between the perforations rather more than half a line. Cells oblong, not so wide as long, about six or seven rows in the space of half a line measured transversely; so that seven or eight rows of cells occupy the space between any consecutive pair of perforations.

Clathropora intermedia (fig. 5) in some respects approaches the

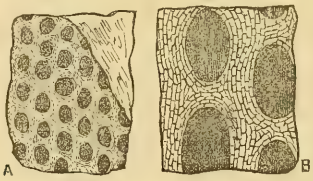

Fig. 5.—*Clathropora intermedia*, Nich. and Hinde. *a*, Fragment of the natural size; *b*, Portion of the same greatly enlarged.

genus *Retepora*, and is intermediate in its characters between *C. frondosa*, Hall, and *C. intertexta*, Nich. The differences will be most clearly brought out between these nearly allied species by the following summary of their respective characters.

1. *Clathropora frondosa*, Hall.—Perforations minute, averaging one half line in diameter, placed at intervals of one and one quarter to one and one half lines, about fourteen rows of cells in one line measured transversely.

2. *Clathropora intermedia*, Nich. and Hinde. Perforations moderately large, from two thirds to one line in diameter, placed at

intervals of rather more than half line, six or seven rows of cells in half line, and seven or eight rows between any two perforations.

3. *Clathropora intertexta*, Nich. Perforations large, usually about a line and a half in diameter, placed at intervals of from one and one third to one and one half lines, about five or six rows of cells in one line, or about eight rows between any two perforations.

Locality and Formation.—Niagara Limestone, Thorold.

65. Retepora asperato-striata, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xl. C, figs. 2*a–h.*) Niagara Limestone, Thorold.

66. Trematopora ostiolata, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xl. A, figs. 5*a–n.*) Niagara Limestone, Niagara River.

67. Fenestella tenuiceps, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. xl. D, figs. 2*a–h.*)

68. Atrypa reticularis, Linn. Abundant in the Niagara Limestone at Thorold.

69. Pentamerus oblongus, Sowerby. Abundant at the base of the Niagara Limestone, Thorold.

70. Athyris intermedia, Hall. (*Ref. Atrypa intermedia*, Hall, Pal. N.Y., Vol. II., pl. xxiv., figs. 3*a–f*, and 4*a–d.*) A species apparently undistinguishable from this occurs commonly in the Niagara Limestone at Thorold.

71. Athyris (Atrypa) naviformis, Hall. Niagara Limestone, Dundas.

72. Rhynchonella (Atrypa) neglecta, Hall. Niagara Limestone, Thorold.

73. Orthis elegantula, Dalman. Niagara Limestone, Rockwood.

74. Strophomena rhomboidalis, Wahlenberg. Niagara Limestone, Owen Sound and Thorold.

75. Strophomena sub-plana, Conrad. Niagara Limestone, Thorold.

76. Strophomena, sp.—A form very similar to, if not absolutely identical with, *S. punctulifera*, Conrad, from the Lower Helderberg. Not only is the general form and aspect of the shell the same, but one specimen exhibits precisely similar punctations.

Locality and Formation.—Niagara Limestone, Thorold.

77. LEPTÆNA TRANSVERSALIS, Dalman. Niagara Limestone, Niagara River.

78. DISCINA TENUILAMELLATA. (*Ref. Orbicula tenuilamellata*, Hall, Pal. N.Y., Vol. II., pl. liii., fig. 3.) Niagara Limestone, Rockwood.

79. DISCINA (ORBICULOIDEA) FORBESII, Davidson. A form very nearly allied to this, if not identical with it. Niagara Limestone, Hamilton.

80. LINGULA LAMELLATA, Hall. Niagara Limestone, Hamilton.

81. SPIRIFERA NIAGARENSIS, Conrad. Niagara Limestone, Niagara River.

82. ORTHIS BIFORATA, Schlotheim. Niagara Limestone, Thorold.

83. PHACOPS CAUDATUS, Brongniart. Niagara Limestone, Hamilton.

84. CALYMENE BLUMENBACHII, Brongniart. Niagara Limestone, Niagara River and Thorold.

III. FOSSILS OF THE GUELPH FORMATION.

85. STROMATOPORA CONCENTRICA, Goldfuss. Very abundant and widely distributed, as well as attaining to a large size; but so badly preserved as to render it impossible to determine whether it really is this species or not.

Locality and Formation.—Guelph Formation, Elora, Guelph, Hespeler, Galt.

86. STROMATOPORA OSTIOLATA, Nicholson. (*Ref.* Annals of Natural History, August, 1873). Guelph Formation, Guelph.

87. FAVOSITES POLYMORPHA, Goldfuss. Guelph Formation, Hespeler.

88. FAVOSITES VENUSTA, Hall, (*Ref. Astrocerium venustum*, Hall, Pal. N.Y., Vol., II., pl. xxxiv. figs. 1*a–i*). Common in the Guelph Formation at Hespeler and Elora.

89. AMPLEXUS YANDELLI, Edw. and Haime. Specimens of an *Amplexus* which we cannot separate from the Devonian *A. Yandelli*, occur, not infrequently, in the Guelph Formation at Hespeler and Guelph.

90. AMPLEXUS, sp. An *Amplexus* of a slender, cylindrical, and elongated form is very common in the Guelph Formation at Hespeler, Guelph and Elora. We have not been able to determine to what species it belongs; but the same form occurs in the Niagara Limestone at Thorold.

91. Pentamerus occidentalis, Hall. Guelph Formation, Hespeler, Guelph and Elora.

92. Trimerella grandis, Billings. Guelph Formation, Hespeler.

93. Trimerella acuminata, Billings. Guelph Formation, Hespeler.

94. Dinobolus Galtensis, Billings. Guelph Formation, Hespeler.

95. Dinobolus, sp. Casts of a *Dinobolus* which is clearly distinct from the preceding occur at Hespeler and Elora in the Guelph Formation.

96. Megalomus Canadensis, Hall. (*Ref.* Pal. N.Y., Vol. II., pl. lxxx. figs. 1*a–e*, pl. lxxxi. figs. 1*a–f*, and pl. lxxxii. figs. 1*a–i*.) Casts of this singular shell are not very rare in the Guelph Formation at Hespeler, Guelph, Galt and Elora.

97. Megalomus compressus, Nicholson and Hinde. Shell equivalve, valves compressed, the depth of both valves being little more than one-third of the width. Form elliptical, the length nearly one-third greater than the width. Umbones anterior, incrassated, with apparently one cardinal and two lateral teeth. A single, deep, concentrically-striated muscular impression placed just in front of and beneath the umbones, with a small circular pit above it. Pallial line simple. Surface of the shell unknown.

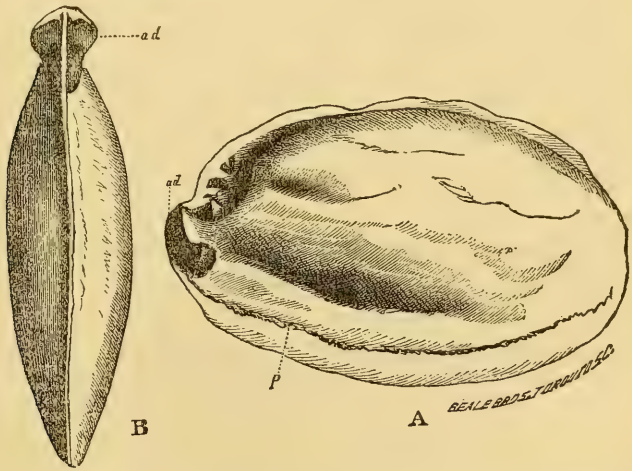

Fig. 6.—*Megalomus compressus*, Nich. and Hinde. *A*, Side view of the cast of the shell, natural size. *B*, The same viewed from above. *ad*, Cast of the adductor impression; *p*, Pallial line.

In many respects this singular species agrees with *M. Canadensis*, Hall; from which, however, it is clearly distinct. It is only known to us by the cast, which is entirely free from distortion, and may therefore be relied upon as giving the true characters of the interior of the shell. The cast forms an almost complete ellipse, which is very much compressed laterally, and has a length of twenty-eight lines, a width of nineteen lines, and a depth of seven lines. In *M. Canadensis*, on the other hand, the depth of the valves is nearly or quite equal to the width. Our species, therefore, entirely wants the great ventricosity of the dorsal portion of the shell which so distinguishes *M. Canadensis*. In the latter species the beaks are enormously thickened, and the cast exhibits a great contraction or excavation situated anteriorly above the casts of the muscular impressions. In *M. compressus*, on the contrary, the thickening of the anterior portion of the shell must have been much less, and this contraction of the cast is wanting. In both species alike, the ventral portion of the cast is the thinnest, and a well marked shallow depression or groove extends backwards from the muscular impression, parallel with the margin of the shell and ultimately becoming obsolete posteriorly. This indicates a corresponding ridge or elevation on the interior of the shell.

Locality and Formation.—Guelph Formation, Hespeler.

98. MURCHISONIA BIVITTATA, Hall. Guelph Formation, Hespeler.

99. MURCHISONIA LOGANI, Hall. Guelph Formation, Hespeler and Elora.

100. MURCHISONIA LONGISPIRA, Hall. Guelph Formation, Elora.

101. PLEUROTOMARIA DEIOPEIA, Billings. Guelph Formation, Hespeler.

102. HOLOPEA GRACIA, Billings. Guelph Formation, Guelph.

103. STRAPAROLLUS HIPPOLYTA, Billings. Guelph Formation, Hespeler.

104. SUBULITES VENTRICOSA, Hall. Guelph Formation, Hespeler.

REVIEW.

INSCRIPTIONES BRITANNIÆ LATINÆ.*

More than fourteen hundred years have passed away since the Romans abandoned Britain, and still relics of their period of rule are often being found; so that the remains of that time include temples, villas, baths, altars, grave-stones, commemorative slabs, pottery, objects made of gold, silver, lead, tin and brass, a large and miscellaneous collection of various articles required in domestic or personal use, &c., &c. Of these the most interesting, at least to the classical student, are those memorials that bear inscriptions. And yet but little attention has been given in the island to these most interesting records of the past as a branch of Latin Epigraphy. Numerous and valuable volumes have, indeed, been published illustrating and explaining local antiquities, in many of which incidental notices, more or less full, are given of inscriptions. Of this class are Stukeley's *Itinerarium Curiosum;* Gordon's *Itinerarium Septentrionale;* Hodgson's "Northumberland" and other County Histories; *Eburacum*, by Rev. C. Wellbeloved; *Isca Silurum*, by J. E. Lee; *Aquæ Solis*, by Rev. H. M. Scarth; "The Roman Wall," by Rev. Dr. Bruce; Smith's "Roman London;" Stuart's *Caledonia Romana;* Wilson's "Prehistoric Annals of Scotland;" and especially the *Lapidarium Septentrionale*—a splendid work in course of publication by the Society of Antiquaries of Newcastle-upon-Tyne, which, when completed, will form the best authority for the monuments of Roman rule that have been found in Northumberland, Cumberland, Durham and Westmoreland. Not one of these works, however, is limited to the inscribed relics even of the localities to which they are restricted, whilst some of them are suited, in their treatment of such inscriptions as are given, rather for the Antiquary than for the Epigraphist.

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* *Inscriptiones Britanniæ Latinæ consilio et auctoritate Academiæ Litterarum Regiæ Borussicæ edidit Æmilius Hubner. Adjecta est tabula Geographica. Berolini apud Georgium Reimerum, MDCCCLXXIII. Folio, pp. xii.* 345.

Lysons' costly volumes, entitled *Reliquiæ Britannico-Romanæ*, contain no few but not all the inscriptions found in different parts of the island, and they are chiefly valuable for the representations of the remains of ancient art, such as pavements, &c. In Smith's *Collectanea Antiqua*, and Wright's "Celt, Roman and Saxon," we have also some *tituli* that have been selected without regard to locality; but they are introduced merely amidst notices of other Roman remains. In the Latin Inscriptions given in *Monumenta Historica Britannica* there is no limitation as to the parts of the island in which they were found, but the selection is not extensive (nor valuable to the student), and "is expressly confined to those only which bear upon general and not upon particular history," whilst in "Britanno-Roman Inscriptions," although not restricted to any particular locality, those alone are treated, of which previous readings or interpretations were regarded as unsatisfactory. The only general collections of Latin Inscriptions found in the island that have been published there or in any part of the British Empire, so far as we are aware, are Horsley's *Britannia Romana* in 1732, and Camden's *Britannia*, (originally published by him 1586 to 1607,) translated and enlarged by Gough in 1806; but these works, however excellent, are not exclusively devoted to Epigraphy, so that in Professor Hübner's volume we have, for the first time collected, all the Latin inscriptions found in Britain, on all the varieties of material on which they were cut or stamped or scratched. The work is designated "*Inscriptiones Britanniæ Latinæ*," and forms the seventh volume of the *Corpus Inscriptionum Latinarum*, published at Berlin under the auspices of the Prussian Royal Academy of Letters. It is edited by Professor Hübner, already well known to all engaged in Epigraphic studies, especially by his most valuable "*Indices*" to the first volume of the *Corpus*, containing *Inscriptiones Latinæ antiquissimæ*, and also by his edition of the *Inscriptiones Hispaniæ Latinæ*. In the preparation of his work, this laborious scholar has spared neither time nor trouble, and twice visited various parts of the island with the object of examining for himself the originals. It is very gratifying to observe in his prefatory observations the kindly remembrance that he cherishes of the courtesies extended to him during his stay in Great Britain by "Babington, Bruce, Clayton, Coxe, Dixon, Franks, Kenrick, Lee, Lottner, Mayor, Müller, Munro, Murray, Nettleship, Newton, Pattison, Pollexfen, Scarth, Stuart, Thompson, Way, Woodford, Wright,

and Yates," some of whose names are favourably known on this side of the Atlantic. Nor must we omit mentioning the pleasing reference by the German savant to the hospitality of His Grace the Duke of Northumberland, whose liberality has placed antiquarian investigators under so many obligations. Even since his return to Germany he has had the advantage of communications on the subject of his volume from "Bruce, Kenrick, Murray, Thompson, Wright and Yates," so that the book contains information almost up to the time of publication—the month of June in the year just ended. In addition to these appliances, the learned Editor has had the opportunity of referring to the works of a remarkably large number of authors, forming in his list about five hundred items; nor in all the authorities there cited are there more than four marked by the asterisk that indicates that he had not seen them. In addition to these he drew information from various periodicals, including Transactions, Journals, &c., and also from some anonymous publications. The result has been that we find in the work such a collection of *variæ lectiones* of Britanno-Roman inscriptions as has never before appeared. His readings of the text are consequently of the utmost value, and his expansions are generally satisfactory. In very many of these, however, he has been anticipated in the pages of this Journal,* a fact of which he seems not to have been aware, as, in several instances, he does not make the usual acknowledgment of priority on the part of another writer.

We subjoin a few examples, in which this omission is especially marked.

In n. 420 we have the following inscription as read by him :—

D M
CONDATI
ATTONIVS
QVINTIANVS
MEN EX CC IMP
EX IVSSO LL·M

At the close of his remarks on this he observes : "*Rectam explicationem proposuit Mommsenus 'D(eo) M(arti) Condati Attonius Quintianus men(sor) ex cc (ducenario) imp(eratoris) ex jusso l(aetus) l(ibens) m(erito).'*" In the tenth volume of this Journal, p. 96,

* In Dr. McCaul's articles on "Latin Inscriptions found in Britain."

1865, this same inscription, as read by Horsley, was discussed, and the same solutions of the principal difficulties were suggested :—

"EX CC evidently stand for *ex ducenario,* and IMP most probably for *Imperatoris.* It does not appear that any explanation of MEN has been attempted: I regard it as standing for *Mensor.* If there be a point after IV as well as after S, then Horsley's expansion—*ex jussu susceptum*—is correct, but I am inclined to think that there was none after IV, so that IVS stand for *Jussu.* But what of *Condati?* I think that the reference to *Condate* of the Itinerary is highly probable, and would expand the word in the inscription into *Condatianis* or *Condatinis,* i.e., *Quintianus mensor ex ducenario Imperatoris ex jussu solvit libens animo.*"

See also *Canadian Journal,* xii., p. 126, where Muratori's and Marini's expansions of the fifth line are noticed :—

"The first proposes *Mensor ex castris,* or *castrensibus Imperatoris;* and the latter *Mensor ex Circuitoribus* (*Circitoribus*). I adhere to my own suggestion [i.e., *ex ducenario*] as the most probable." We may also remark that we prefer *Deabus Matribus Condatianis* to Mommsen's *Deo Marti Condati.*

In n. 481 he gives the following inscription found at Hexham :—

LEG. A
Q. CALPVRNIVS
CONCESSINI
VS· PRAEF· EQ
CAESA· CORI
ONOTOTAR
VM MANV PR
AESENTISSIMI
NVMINIS DEI VS

This he expands—*Leg(ati) A[ugusti pro prætore] Q. Calpurnius Concessinius, præf(ectus) eq(uitum), cæsa Corionototarum manu, præsentissimi numinis de[o] v(otum) s(olvit),* and remarks—*Explicationem vv. 5–9, Mommsenus repperit.* In the *Canadian Journal,* vol. iv., p. 175, 1859, this inscription, as read by Horsley, was discussed, and the same solution of the difficulty, in vv. 5–9, proposed *scil. cæsa Corionototarum manu,* with the explanatory observations :

"Calpurnius Concessinius, before going into action with a band of Corionototares, vowed to some god that, if successful, he would erect an altar to him. Having cut them to pieces, he performed his vow

in acknowledgment of the aid of that deity, who had manifested on this occasion his characteristic of giving most timely and effectual assistance."

"If my interpretation be correct, this stone possesses unique interest, as the inscription is, so far as I am aware, the only one extant which records an engagement between the Romans and the Britons." See also "Britanno-Roman Inscriptions," p. 142.

In n. 498 two inscriptions are given :—

(*a*)
DIFFVSIS
PROVINC
BRITANNIA AD
VTRVMQVE· O
EXERCITVS M

(*b*)
OMNIVM· FIL
HADR
A· NECESSITAT
VATIS NORP
F INC

Hübner regards the two fragments—which were found in the same place, Jarrow Church—as parts of the same stone, and remarks :—"*Probabile est commemoratos esse exercitus magnos, diffusos per castra in provincia Britannia collocata inter utrumque oceani litus, fortasse propter res gestas, quæ omnium fidem et virtutem probaverunt, ab imperatore Hadriano collaudatos dira tantum necessitate coactos abstinuisse ab ultimo orbis noti limite subjiciendo, conservatis tunc reipublicæ finibus vel quæ sunt similia.*" In his preface on the *Vallum Hadriani*, he says of the same stone :—"*Certum est eum operis alicujus ab Hadriano inter utrumque oceanum perfecti memoriam continere, quod opus pæne necessario statuendum est fuisse ipsum vallum.*"

In the *Canadian Journal*, vol. xii., p. 112, 1868, a similar view is taken : not, indeed, as to the two fragments being parts of the same stone—for the lettering as represented in Dr. Bruce's woodcuts, p. 309, 3rd Ed., is so different as to preclude that opinion—but as to the great importance of the first as "marking the completion of some important enterprise," and that enterprise is subsequently stated as "the completion of the occupation of the isthmus between Solway Firth and the mouth of the Tyne by a chain of military posts." In the note the conjecture is offered that "there may have been [on the upper portion of the stone], for anything that we know to the

contrary, some such terms as MVRO PERFECTO PRAESIDIISQVE."

In nn. 1072, 1073 are copies of two inscriptions found at Birrens, *Blatum Bulgium* :—

(*a*)
DEAE RICAGM
BEDAE PAGVS
VELLAVS MILIT
COH II TVNG
VSLM

(*b*)
DEAE VIRADES
THI PAGVS CON
DRVSTIS MILIT
IN COH II TVN
GRO SVB SILV(i)O
aVSPICE PR
AEF.

Hübner expands the first—*Deæ Ricagambedæ pagus Vellaus milit(ans) coh(orte) ii Tun(grorum) v(otum) s(olvit) l(ibens) m(erito)*, and the second—*Deæ Viradesthi pagus Condrustis milit(ans) in coh(orte) ii Tungro(rum) sub Silv(i)o (A)uspice praef(ecto)* [*fecit*]. On the second and third lines of (*a*), he remarks :—*Pagus Vellaus militans positus est cum aliqua audacia pro paganis Vellavis militantibus in cohorte. Cf. n. 1073. Ricagambeda tutelaris potest fuisse pagi ejus Tungrorum.* On the second and third lines of (*b*) he also remarks:—*Cum pago Condrusti contulit Germanos ex Cæsare notos* (*bell. Gall. 2, 4, 10. 4, 6, 4. 6, 32, 1*), *C. F. Hermannus.* Götting. gel. Anz. 1846, p. 1415. In these expansions and remarks we concur, but Hübner was not the first that proposed the explanations.

In the *Canadian Journal*, vol. iii., p. 14, 1858, the same views are taken, with the sole exception of *Ricagmabeda* for *Ricagambeda*, and the following translations in accordance with them are given :—

(*a*) "To the goddess Ricagmabeda the Vellavian district (*i.e.*, the men from that district) serving in the second Cohort of the Tungrians," &c.

(*b*) "To the goddess Viradesthi (or Viradethi) the Condrusian district (*i.e.*, the men from that district) serving in the second Cohort of the Tungrians, under the command of Silvius Auspex Præfect."

In the two examples that we subjoin, there is in addition a remarkable misstatement of fact. In n. 830 we have a copy of an inscription found at Birdoswald, *Amboglanna* :—

DEO SANCTO
SILVANO VE
NATORES
BANNIES· S

Hübner expands BANNIES* *Bannieses*, and remarks :—"*Ceterum Bruce recte observavit venatores a ludis circensibus vel arenæ fuisse, ut collegium venatorum Deensium qui ministerio arenario fungunt apud Henzenum*, n. 7209."

In the *Canadian Journal*, vol. xii., p. 112, are the following observations on the same inscription :—

"I suspect that the word intended was *Bannenses* for *Bannenses*, and that the *Venatores* were not mere sportsmen, but that they belonged to the class of men that contended with wild beasts in amphitheatres, such as we know were in various parts of Roman Britain, *e. gr.* at Chesters, at Housesteads, at Caerleon, &c. Thus we have in Henzen's n. 7209 :—*Coll. Venator· Deensium qui ministerio arenario fungunt*, where *Deensium* is the adjective formed from *Dea*, for the name of the place was *Dea Augusta*." Nor has Dr. Bruce in any of his publications, so far as we are aware, made this observation.

In n. 964 we have a copy of an inscription, in which the words in the fifth and sixth lines are given as

SVB CVRA MO
DI IVLI LEG·AVG·

Hübner remarks—*ut dedi fere etian Bruce, qui recte comparavit Modium Julium legatum Augusti incerti tituli Amboglannensis*, n. 838.

In the *Canadian Journal*, vol. x., p. 317, 1865, this same inscription is discussed, and the following observations are offered :—

"I am not satisfied as to the name of the Legate. The M is separated in the copy [in *Monumenta Historica Britannica*] by an interval from CVRA, so that we may not read CVRAM, and this is, besides, unusual. Nor is it probable that it stands for *Marci*. It has occurred to me that, perhaps, there was an O after it, and that IVNII was a misreading for IVLII. We shall thus get MOD. IVLII, i.e., *Modii Julii*, the same Legate named on a stone, without date, found at Birdoswald." To this is subjoined the note :—"In Brit. Rom. Inscrip., p. 30, I have offered a different conjecture." The conjecture to which reference is made, was that "the injured

* Hübner was the first that discovered I (i.e., *Bannieses* not *Banneses*) on the stone.

letters" (in that inscription found at Birdoswald) "are ST, and that the *Modius Justus* named here is the same who, at a different time, was LEG· AVG· PR· PR of Numidia. He is mentioned in the inscription given by Renier, *Inscriptions de l'Algérie*, n. 44." It is remarkable that in this conjecture Dr. McCaul was anticipated by Hübner in *Mus. Rhein.* 14, 1859, p. 360. Similarly also in n. 1003, the *nomen* of the *procurator* there mentioned, which had been seriously misstated, was given in the *Canadian Journal*, vol. iv., p. 356, 1859, (and reprinted in "Britanno-Roman Inscriptions," p. 147,) as *Oclatinius*, and the person identified with *Oclatinius Adventus*, the colleague of Elagabalus in the Consulship, whilst Hübner refers to *Rhein. Mus.* 14, 1859, p. 68, and 11, 1857, p. 44, for the same conjecture. On this subject we may mention that the only copy of any number of the *Rheinische Museum* that we have seen, or that most probably is to be found in any part of Canada, is No. 1 for 1856, containing an article by Hübner on the Roman army in Britain, which is referred to in the notes or P.SS. of "Britanno-Roman Inscriptions," and in the *Canadian Journal*, vol. xiii., p. 139, 1871. Under such circumstances, it appears that these two conjectures were formed independently by the two inquirers separated by the Atlantic. It also is evident that the *Canadian Journal* (although occasionally referred to by the German Editor) is as little known in Berlin as the *Rheinische Museum* is in Toronto. Indeed, our periodical is not included in the list of *Ephemerides et Similia*, given on p. xii. of "*Inscriptiones Britanniæ Latinæ.*" The volume published in Toronto, entitled "Britanno-Roman Inscriptions," however, is mentioned among the works consulted by the Editor, who in some places notices explanations or readings as first offered in that volume, with references to the pages. Whilst we claim then, as we justly may, due credit for those readings or explanations that were first published in our Canadian works, we doubt not that Professor Hübner, if he had been aware of them, would have readily acknowledged priority, as he has courteously done in other instances.*

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* Such, for example, as in n. 63—"Clarium *Apollinem, non* clarum, *ut olim verterant, intellegendum esse perspexit McCaul, Brit. Rom. inscr. p.* 154;" n. 732—"*Consules a.* 225 *latere vidit McCaul, qui etiam litteras singulares v.* 5 *in fine recte solvit primus;*" and in n. 794—"*Hoc recte primus monuit McCaul, Brit. Rom. inscr. p.* 159."

We now proceed to give some examples of solutions or remarks offered by Professor Hübner that we regard as unsatisfactory.

In n. 324 we have a copy of an inscription found at Plumpton Wall :—

II·GAL.... AMPI .....
SVB CALVISIO· RV....
CVRANTE AVRELIO.

Hübner remarks on the second line, "*Calvisius Ru[fus?] videtur esse legatus provinciæ aliunde non notus.*" We arrived independently at the same conclusion as to the rank of the officer, but we are disposed to supply SONE as the missing letters after RV, *i.e.*, *sub Calvisio Rusone*, for it is possible that he may be the *Calvisius Ruso*, mentioned in Gruter's lxiv., 9, as colleague of *L. Cæsennius* [*Cæsonius*] *Pætus*. Thus he may be regarded as *suffectus* in place of *Petronius Turpilianus*, who had resigned his Consulship, and was subsequently sent as legate to Britain. If this identification be correct, his administration of the government of the island may be placed immediately before or after *Sallustius Lucullus*, noticed in Suetonius' *Domitian*, c. 10. AMPI (on which Hübner offers no remark) we regard as part of TAMPIANA (or TAMPIANAE) *scil. ala Tampiana* mentioned in Trajan's diploma of A.D. 104.

In n. 97 is a copy of an inscription, on which there has been much discussion. Hübner reads it thus :—

for TVNE ET BONO EVE
NTO CORNELI· CASTVSETIVL
BELISMIVS· CONIVGES
PO *sve* R

i.e., [*For*]*tune et Bono Evento Corneli*(*us*) *Castus et Jul*(*ia*) *Belismius conjuges pos*(*ue*)*r*(*unt*). His view is that *Belismius* is the name of a female as *Vallaunius* in another inscription found in the same place, and he remarks :—*nam quanquam formam in*—us *pro feminino usurpari alibi nondum quod sciam repertum est, tamen nec de formis per compendium scriptis* Belismius(a) Vallaunius(a) *cogitari potest neque alia suppetit explicatio certa.*" Hübner seems to have forgotten that Marini, *Atti de fratelli Arvali*, i., p. 331, (cited in "Britanno-Roman Inscriptions," p. 129,) gives the following examples of masculine *cognomina* of females :—"*Aelia* Demetrus, *Cassia* Mus, *Julia* Barachus, *Mucia* Antiochus, *Calidia* Antiochus, *Clodia* Optatus, *Acilia* Carnus, *Sallustia* Helpidus, *Flavia* Chrysophorus." No

explanation of the above inscription that has been offered seems to us satisfactory, nor is Hübner's suggestion an exception. We are now inclined to propose the view, that *Castus* and *Belismius* were *conjuges* of one wife, the divorced of one, or possibly of both of them. See in Orelli, n. 2660, an epitaph by two husbands to a deceased wife.

In n. 731 we have a copy of an inscription found at Great Chesters, in which the titles *Parthici* and *Medici* are found, evidently denoting *M. Aurelius* and *Verus.* Hübner from this infers that the date is 162--168, A.D. It is impossible that 162 can be one of the *cancelli* of the date, for these two Emperors did not take these two titles until 166 A.D. Again, in n. 513 the date 205--208 is given, but if we assume that the *Victoria Augustorum* (AVGG) refers to the expedition of *Severus* and *Caracalla* into Caledonia, as it most probably does, we may assign the inscription to 208, or 209 before *Geta* was made *Augustus* in the latter year.

In n. 1222 the inscription on a tile found at Caerleon is given, in which the letters II AVG are certain, but they are followed by a monogram, on the reading and meaning of which different opinions have been proposed. On this Hübner remarks :—" Lee, delineations, p. 21, *Isca*, p. 43, *adn., ubi nexum aut MVT aut MAT aut MANT significari statuitur.*" On reference to Lee's *Isca*, pp. 43, 44, we find the following note on this inscription :—

"The Rev. J. McCaul, LL.D., of Toronto, kindly communicated the following note, which doubtless is the correct reading of the stamp :—'Read LEG II AVG ANT, *i.e., Antoniniana.* From Orelli, n. 2129, we learn that the title *Antoniniana* was borne by the LEG· II· A· P· F· *scil. adjutrix, pia, fidelis,* the same mentioned in one of the Bath and one of the Lincoln Inscriptions.'"

In n. 759 there is a copy of the inscription in Iambic verse found at Carvoran. The only difficulty in it is in the words

"Militans
Tribunus in præfecto dono principis."

Hübner remarks :—"Tribunus militans in præfecto dono principis *propter metrum positum est pro tribuno cohortis (fortasse 1 Hamiorum) qui beneficio imperatoris honorem tribunatus obtinuit, cum præerat cohorti illi, quam præfecti regere solebant.*" He then refers to articles in periodicals on the subject by Henzen, Grotefend, and himself. We have no opportunity to consult the articles to which he refers, but we

do not concur in this view of the meaning of the words. We understand them as denoting that Donatianus, by the favour of the Emperor, held the office of *Legionary* tribune whilst he was Præfect of an *ala*. Of this we can produce two examples in Britain. In Orelli's n. 5017 we find that *M. Stlaccius Coranus* was *Tribunus militum* Legionis II. Aug. *Præfectus equitum alæ Hispanorum in Britannia*, and in n. 504 *Inscrip. Brit. Latinæ, Tineius Longus* is stated as—*in præfectura equitum lato clavo exornatus, i.e.*, whilst *Præfect* of an *ala* he was also *tr.bunus laticlavius*, not improbably of the 20th Legion. See Suetonius, *Claudius*, c. 25, *Vegetius*, ii., 7, *Brit. Rom. Inscrip.*, p. 287, and *Canadian Journal*, vol. xii., pp. 114, 115, 1868.

Chapter lxi. of the work is devoted to the inscriptions found at Risingham, the ancient name of which is believed by some to have been *Habitancum*, which Hübner emends into *Habitancium*. The great objection to the proposed ancient name is that it is not found in any ancient author, *nisi forte latet* (as Hübner ingeniously suggests) *in Evidensca Ravennatis*. The sole authority for the name is an inscription on an altar found at the place, of which we subjoin a copy from *Inscrip. Brit. Latinæ*, n. 996 :—

DEO
MOGONTI CAD
ET·N·D·N̄· AVG
M· G· SECVNDINVS
BF· COS· HABITA
NCI PRIMA· STAT
PRO· SE· ET· SVIS· POS

The chief difficulty in this inscription is in the words HABITANCI PRIMA STAT. The received opinion is that NCI should be connected with HABITA, thus forming HABITANCI, and that this is the ancient name of Risingham; also that PRIMA· STAT should be expanded PRIMA· STAT*ione*, but the word *prima* is differently interpreted as first from the Wall going north, or first from the boundary of the province going south. In the *Canadian Journal*, vol. xii., p. 125, this inscription is fully discussed, and the expansion *Habita nomine ducenarii prima statione* is proposed. But this expansion was based on the faith of the accuracy of an improved woodcut in the 3rd Ed. of Dr. Bruce's "Roman Wall," in which the letters before HABITA are clearly given as NCCI, not

NCI. It now appears from evidence, which Dr. Bruce regards as satisfactory, that the copy as given in that woodcut is erroneous, and accordingly the second C does not appear in the impressions as given in the *Lapidarium Septentrionale.* Hübner also saw only one C. Assuming, then, on these authorities, that the letters are NCI, we now propose *nomine centenarii* instead of *nomine ducenarii*, and further justify the phrase *habita statione* by the following inscription, n. 3944, in Mommsen's *Inscrip. Asiæ, Provinc. Europæ Græc., Illyrici Latinæ :—*

I O M
C· IVLIVS
FLAV*us* B
COS· ITER
STAT· HAB

The learned Editor expands the last line—*stationem habens.* As to the expansion *centenarii*, it may be supported by n. 1919 of Mommsen's same work, in which we have PROC· CENTENARIO· PROVINCIAE. See also n. 6155. It can be proved, indeed, that at one time the Procurator of Britain was *ducenarius*, for the father of Elagabalus held that office at that salary, as appears from Orelli's n. 946, but there are reasons for thinking that the pay was not always the same, or that in this case it was special. It is proper to add that the *Beneficiarii Consulares* were under the *Procurator* of the Province. There are various other points on which we cannot accept the views given in this work; but, after all necessary deductions, however, we are of opinion that it should be regarded as a very valuable contribution to British Epigraphy. In it alone, so far as we are aware, is a full collection of all the known Latin and Greek inscriptions of the island, including those on *Massæ argenti æris plumbi, Tegulæ, Tesseræ, Plumbo nigro et albo inscripta, Vascula vitrea, Pondera, exagia, staterœ, supellex ex auro et argento, supellex ex ære et ferro, anuli, sigilla medicorum oculariorum, &c., &c.* And, as we have already noticed, it supplies a want that has been hitherto much felt of the *variæ lectiones.* To these claims on attention, we must add that there are admirable "Indices," arranged under the heads—*Prænomina, Nomina, Agnomina, Geographica et Topographica, Res sacræ, Respublica Romana, Res Militaris, Res Municipalis, Res Epigraphica.* Indeed, we regard this last portion of the volume as the most valuable to the Student, for, as an aid in interpreting the chief difficulties, the work is of little use, and cannot be regarded as adding

to the reputation of the Editor. As it is, however, it is an excellent specimen of what conscientious and painstaking labour can effect; and we cannot refrain from expressing our regret that the credit of collecting and elucidating the Epigraphic remains of the Roman period in Britain is not due to a native of the island. Neither learning, nor wealth, nor patriotism, nor other requisites, one would suppose, were wanting in Great Britain; and yet the honour of initiating and accomplishing a great work for the illustration of a very important part of the national antiquities of England and Scotland must be given, in the first place, to the encouragement and patronage of the Prussian Academy of Letters, and in the second, to the industry and self-denial of a German scholar. It is with some satisfaction, however, that we are able to add, that if Berlin is entitled to the credit of issuing the first collection of all the Latin inscriptions found in Britain, Toronto may justly claim the merit of having anticipated even the mother country* in the production of a work exclusively devoted to Britanno-Roman Epigraphy, and in the first publication of a volume in which some of the chief difficulties of such records of the Roman occupation of the island are critically treated.

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* We gladly bear testimony to the remarkable interest in the collection and elucidation of national antiquities, as evinced by the many Archæological Societies established throughout the kingdom, and the numerous articles on such subjects contributed to Journals or Transactions. And yet, so far as we have been able to ascertain, it is an undeniable fact that no separate work on general Latin Epigraphy has been published in any part of the British Empire since Fleetwood's *Sylloge* in 1691. Nor can we call to mind any scholarly publication even on branches of it except the little books—Wordsworth's Pompeian Inscriptions and Kenrick's Roman Sepulchral Inscriptions; and both of these are of late date in the present century, a century,—not to speak of the preceding hundred years—which, on the continent of Europe, has enriched Classical and Christian Archæology by the learned labours of such scholars as Borghesi, De Rossi, Cardinali, Garrucci, and Henzen in Italy, Orelli in Switzerland, Mommsen, Hübner Arneth, Zumpt, and Zell in Germany, and Egger, Renier and Le Blant in France.

THE SHEPHERD KINGS OF EGYPT.

BY JOHN CAMPBELL, M.A.,

Professor of Church History, &c., Presbyterian College, Montreal.

I.—INTRODUCTION.

I have given the above title to this article, not because I propose to confine myself to the individuals or families for whom the name of Shepherd Kings has been reserved, but because the Asshurites, whose history I intend to trace, include the Hyksos and the ancient stocks with which they are most closely connected. In my last paper on "the Horites" I directed attention to a Shethite line, which appeared in the annals of Egypt, Arabia and India as inimical to the descendants of Seir. This line I there stated to be that of Asshur, the father of Tekoa. Further researches in connection with the family of Asshur have led me to the discovery of certain errors of identification of which I was guilty in the article on the Horites; and notably that of the Persian Gilshah with Alvan, the son of Shobal. Much confusion must also necessarily exist in the connections of Jahath, the son of Alvan, and Ahuzam, the son of Asshur, different as these names may at first sight appear. The magnitude of the task of tracing even a single ancient line through the various histories and mythologies of the world, in which its members appear under many disguises and strangely entangled, must be my excuse should similar errors of judgment be found in the present article.

The families of Asshur are given in 1 Chron. iv. 5, 6, 7, and are mentioned nowhere else in the Bible. Asshur himself is spoken of, however, in the second chapter of the same book at the twenty-fourth verse, where he is represented as a posthumous child of Hezron, the grandson of Judah, by his wife Abiah. By other wives, Hezron, we read, was the father of Jerahmeel, Ram and Chelubai, and of Segub. In no other part of Scripture is Asshur alluded to, and no other genealogy of the sons of Judah, except that which gives the descent of David from Ram, the father of Amminadab, brings us down farther than the mention of the Hezronites. The short story of his birth and

descent is plain and circumstantial. It is not difficult to believe that such a son might have been born to Hezron, and have been the head of a Tekoite family, although his name and those of his children never again occur in the annals of the Jews. But how (1 Chron. ii. 24,) did Hezron, who (Genesis xlvi. 12,) went down with his brethren into Egypt, and (1 Chron. ii. 21,) married a daughter of Machir, the grandson of Joseph, there, come to die in Caleb Ephratah, which was situated in Palestine? The question at once arises, "Is this the same Hezron?" I think not. I would even question that the father of Asshur bore the name of Hezron, and see in this verse a corruption of the text, of which there are, unhappily, too many in the books of Chronicles. I am compelled, indeed, to regard the appearance of the grandson of Judah in connection with the father of Tekoa as an instance of Rabbinical interpolation or tampering with the original of the genealogies here recorded. Hezron, the son of Pharez, cannot have been in any sense the father of Asshur, although he may have entered upon the domain which was once the possession of this ancient hero.

I need not apologize for finding Gentile names in the early chapters of the first book of Chronicles. Lord Arthur Hervey has already found that the Kenezites of chapter iv. 13 are not Israelites, and Professor Plumptre has expressed himself in a similar way even in regard to Temeni, one of the sons of Asshur, whom he connects with the Edomites. There is, as I have shewn in my last paper, mention made of professedly Gentile families in different parts of the second and fourth chapters, and the whole argument of that paper has been deemed conclusive for the non-Gentile character of the majority of the genealogies of both of these. The Jerahmeelites, called descendants of a son of Hezron, I have proved to be distinct as a people, not only from the Hezronites, but from the tribe of Judah itself. Turning to the genealogies of Caleb or Chelubai, which is certainly not a Jewish name, we find such Midianite appellations as Rekem and Zur (1 Chron. ii. 43, 45; comp. Numbers xxxi. 8). Among them also we find Maon, a name applied to no Israelite in any part of the Bible, but designating (Judges x. 12, 2 Chron. xxvi. 7,) an inimical tribe allied with Sidonians and Amalekites, Philistines and Arabians. In 1 Chron. iv. 41, the word erroneously rendered "habitations" in our English version is clearly the name of this tribe, as many writers have indicated. It is true that we have (Ezra ii. 50, Nehem. vii. 52,) Meunim and Mehunim, which are the same word,

but the peoples so named are of the Nethinims, who were no Israelites but Gibeonites and other so-called Canaanites admitted to the temple service in the days of Solomon. A glance at the families of the Nethinims is in itself instructive in connection with the subject of the non-Israelite character of the genealogies of the first book of Chronicles. Besides the Mehunims we find the children of Reaiah (Ezra ii. 47) and the children of Paseah (ii. 49) answering to similar names in 1 Chron. iv. 2, 12; while others are apparently later forms of old names mentioned in the same genealogies; and some, as Sisera, necessarily recall ancient enemies of the Israelites. If it be true that the lines of Jerahmeel and Chelubai are Gentile, it is not at all unlikely that the family of Asshur will be found to follow the same rule. This presumption is rendered still more probable by the fact that the family of Asshur is mentioned shortly after the Horite line of Shobal; that it immediately follows the families of Etam, whose name gives us the Egyptian Athom; and immediately precedes that of Coz, the Choos of Eusebius, whose son Ouenephes or Anubis is the Anub of 1 Chron. iv. 8, and with whom is connected the shepherd king Archles, the Acharchel of the same verse. I need hardly say that in the last mentioned family we also find Bacchus, Œnopion, and Hercules of the Greek mythology. A divine purpose gave to the sacred writers these important Gentile genealogies, and a human hand was permitted by an all-wise Providence to connect them at a certain period of Israelitish history with the genealogies of the twelve tribes.

In 1 Chron. ii. 24, Abiah is given as the name of the mother of Asshur. In the fourth chapter of the same book and at the fifth verse we read: "And Asshur, the father of Tekoa, had two wives, Helah and Naarah. And Naarah bare him Ahuzam, and Hepher, and Temeni, and Haahashtari. These were the sons of Naarah. And the sons of Helah were Zereth, and Jezoar, and Ethnan." The two former of these names, giving to the Hebrew *cheth* the power of *ch* and to *ayin* that of *g*, would be Ashchur, Achuzam, Achashtari Tekoag, Nagarah, Tzereth, Tzochar, Chelah. I may mention that the *Kri* of the Book of Chronicles replaces the *yod* which gives the initial letter of Jezoar, or, as it should be, Jezohar, by a *vav*, which is the conjunction *and*, so that Zohar or Tzochar is the correct rend ring of the Hebrew. In the Septuagint version we meet with important variations. Thus in 1 Chron. ii. 24 we read: "And after the death of Ezron Caleb went to Ephratah; and the wife of Ezron was Abia;

and she bare to him Ascho, the father of Thekoe." In the fourth chapter at the fifth verse also we read: "And to Asour, the father of Thekoe, were two wives, Aoda and Thoada. And Aoda bore to him Ochaia, and Ephal, and Thaiman, and Aasther; all these were the sons of Aoda. And the sons of Thoada, Sereth, and Saar, and Esthanam."

Gesenius looks upon the word Ashchur as identical with Shachar, *to become black*, with a prosthetic aleph. It is certainly strange that the black Asshurites should be in such verbal opposition to the white Horites. Tekoa, the region of which he is called the father, is not mentioned in the earlier books of the Bible, but the name occurs in 2 Samuel, xiv. 4, and in later books, as well as in the first book of Maccabees. It lies a few miles south of Bethlehem on the borders of the desert. We need not be surprised to find a great name, that of Ashchur, connected with a comparatively small place, since Shobal, whom we have recognized as a chief divinity among many peoples, is spoken of as the father of Kirjath Jearim. It is impossible to reconcile the Hebrew and Greek names of the two wives of Ashchur, nor can any reason be given for the apparent reversion of the order in the mention of their children which appears in the Hebrew. Helah or Chelah is a word almost identical with the geographical names, Halah, designating (2 Kings xvii. 6,) a province of Assyria, and Hali (Joshua xix. 25,) a town in the tribe of Asher. Naarah is plainly the original of the name Naarath or Naaran, by which (Joshua xvi. 7; 1 Chron. vii. 28,) a town on the border of Ephraim was called, and probably of the kindred form Maarath applied to a place in the tribe of Judah (Joshua xv. 59).[1] Achuzam, the eldest son of Naarah, at once recalls the Philistine Achuzzath (Genesis xxvi. 26), the final letter being the sole distinction of the respective names.[2] In Hepher we find the eponym of an important town and region in Judah (Joshua xii. 17; 1 Kings iv. 10). He likewise connects with the Philistine stock in the town of Zebulon called (Joshua xix. 13; 2 Kings xiv. 25,) Gath Hepher. Temeni, the third son of Naarah, may easily have been the father of the family to which Husham, the king of Edom (Genesis xxxvi. 34), and Eliphaz, the friend of Job (Job ii. 11), belonged, and from which the

[1] Mearah, beside the Sidonians (Joshua xiii. 4), is a name that may geographically as well as philologically connect with that of the wife of Ashchur.

[2] Azem or Ezem (Joshua xv. 29; 1 Chron. iv. 29), and Azmon (Numbers xxxiv. 4, 5,) agre in situation with the region which we shall find to contain reminiscences of Achuzam.

Edomite Teman may have gained his name through the alliance of his father Eliphaz, or his grandfather Esau, with a Hittite wife. I shall yet show a complete connection of the Ashchurites with the Hittites. But in this Temeni we also find the eponym of the well known city of Timnath (Genesis xxxviii. 12), existing under that name in the time of Jacob. It belonged to the tribe of Judah (Joshua xv. 10, 57), or to Dan (Joshua xix. 43), but was also recognised as a town of the Philistines (Judges xiv. 1, &c.; 2 Chron. xxviii. 18). The youngest son of Naarah was Achashtari. This remarkable name, for which no Hebrew derivation can be found, is by Gesenius referred to the Persian language, and connected with the Persian *ekhshter* (Sanscrit *açwatara*), meaning "mule," but also with an analogous form, *khshetra*, signifying "king." I have no hesitation in associating the name of Achashtari with the city of Bashan called (Genesis xiv. 5; Deut. i. 4; Joshua xiii. 12, 31; xxi. 27,) Ashtaroth Karnaim, Ashtaroth, and, with the coptic prefix, Beeshterah, as also with the goddess Ashtoreth (Judges ii. 13; x. 6, &c., &c.) The initial letter of the latter word is *ayin*, which is the most fitting representative of the somewhat neutral *cheth* of Achashtari. Ashtaroth is, like Achuzam, Hepher and Temeni, a Philistine name, as appears plainly in 1 Samuel, xxxi. 10.

The Bible connections of the sons of Helah are equally striking. Zereth is the first mentioned. A town of the Reubenites bears the name of this son of the Tekoite, together with that of his father as Zereth Hashachar, equivalent in meaning to Zereth the Ashchurite, or Zereth of Ashchur (Joshua xiii. 19). He is at the same time the eponym of Zarthan, a town of the Manassites (Joshua iii. 16; 1 Kings iv. 12; vii. 46). I would also be disposed to derive Kartan and Kiriathaim of the same region from the name of Zereth, as we find instances of *Tzade* changing to *Koph*, such as Zabar and Kabar, meaning to *heap up*, *bury*.[3] Still more numerous instances of the change of *Tzade* to *Caph* lead me to identify some of the descendants of Zereth with the Cherethites (1 Samuel xxx. 14; Ezekiel xxv. 16, &c., &c.), who are spoken of together with the Philistines. This identification is in part justified by the fact that the brook Cherith

[3] Kerioth in the south of Judah (Joshua xv. 25), and a place of the same name in Moab (Jeremiah xlviii. 24), also represent Zereth. The Hadattah with which the first Kerioth is united at once recalls the derivation of the name of Carthage given by Bochart. In treating of the Phœnician and Punic relationships of the Ashchurites, I shall clearly prove the connection of Carthage with the family of Zereth.

(1 Kings xvii. 3, 5,) flows into the Jordan near the Zereth region proper. Zohar, who comes next in order, gives no difficulty. He is (Genesis xxiii. 8,) the father of Ephron, who dwelt among the children of Heth at Kirjath Arba or Hebron, and who is himself called a Hittite. His son gives their names to at least two places in Palestine (Joshua xv. 9 ; 2 Chron. xiii. 19), but I have not so far found any geographical equivalent for himself. Ithnan (Joshua xv. 23), a town of Judah, may probably be the same word as Ethnan, the name of the last son of Ashchur.

With the family of Ashchur I hope to be able to show that a part, if not the whole, of the great Philistine stock is ethnically connected. I find, therefore, a descendant of Ashchur in the Abimelech who first ruled over a people of this name in the land of Gerar, at the time of the patriarch Abraham (Genesis xx. 2), the successor, or one of the successors of whom numbered Achuzzath among his friends. This first Abimelech was, I think, the Jehaleleel of 1 Chron. iv. 16, whose children are given as Ziph, Ziphah, Tiria, and Asareel. The evidence, altogether ethnic as distinguished from Biblical, points him out as a son of Achuzam, although occasionally it seems to indicate a similar relationship to Zereth. The name Jehaleleel occurs (2 Chron. xxix. 12,) as that of a Levite, and the cognate Mahaleleel, which designates an antediluvian patriarch of the line of Seth, is also found (Nehem. xi. 4,) among the descendants of Pharez, the son of Judah. Similar to these is Nahalol, a town of Zebulon (Joshua xix. 15 ; Judges i. 30), out of which the original inhabitants could not be driven by the Israelites. Equally near is the form Nechaliel (Numbers xxi. 19), a station of the Israelites in their wanderings situated within the territory of Moab. The river which bears the name is identified by Burckhardt with the Waleh, and by Robinson with the Enkheileh or Lejum. Seetzen terms it the Alvale. It is worth observing that the root of Nahaliel, like that of Ahuzam, signifies "possession," and that the word Nahal also denotes a stream or river. The well established connection of the Sanscrit Cali and the Egyptian Nile shows that *n* forms no integral part of this root. Halhul (Joshua xv. 58,) may probably be a reminiscence of Jehaleleel in the south, especially as we find it in the region of Maarath and Ziph. Whatever the Bible term may be which indicated the first abode of this son of Achuzam, his name survives in the mountains of the south known now as Helal and Dhallal, while the Azazimeh

tribes and mountains preserve that of his father.[4] It is also found in the Wady Khalil with which Khulasa or Elusa must necessarily be associated, these being simply modified and softened forms of the word. This wady is in the region of Gerar and Beersheba where Abimelech dwelt, and the name of Elusa is substituted in the Arabic version of the book of Genesis for Gerar.[5] It is most natural to find a river bearing the name Khalil, as it corresponds with the application of Nahaliel in the land of Moab to a stream of like character, and as it appears that the name of Nahalol in Zebulun was applied to a tributary of the Kishon, which flowed past it. Zebulun himself seems to have married into a Philistine family, for two of his sons, Elon and Jahleel, have Philistine names, the latter being derived from Jehaleleel. Dimnah also, with Elon and Nahalol in Zebulun (Joshua xxi. 34,) show some analogy to Elon, Timnath, Halhul and Timnah (Joshua xix. 43; xv. 57, 58,) in Dan and Judah. A still better connection, however, for Jehaleleel is found in the Hebrew of Isaiah xiv. 12, where the expression "Lucifer, son of the morning," is Helel, son of Shachar, the latter word being the same as that united with the name of Zereth. Reasons will yet appear to justify the supposition that the prophet made use of historical fact to illustrate the fall of Babylon, or that the name employed by him had at one time historical significance.

Ziph, the eldest son of Jehaleleel, gave his name,—which means "flowing," and is akin to Zepheth, *pitch* or naphtha (the latter words being identical),—to a town in Judah, mentioned in Joshua xv. 55, 1 Samuel xxiii. 14, &c., 2 Chron. xi. 8, and to another town in the south (Joshua xv. 24). The former Ziph is a place of caves. The forms of this root, in which *Tzade* takes the place of *Zain* and which retain the same primary meaning, are worthy of attention. Such are Zephath and Zephathah, the latter near Mareshah. Now (1 Chron. ii. 42,) Mesha, another father of Ziph, and Mareshah, the father of Hebron, are united. The name Mesha only occurs once again in Scripture as that of a Moabite king (2 Kings iii. 4,) to whose history the recent discovery of the Moabite stone has turned the attention of the Christian world. Other connecting terms are Achzib, now Dsib, which designates a town in Asher (Joshua xix. 29; Judges i. 31),

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4 *Vide* Palmer's Desert of the Exodus and article on "The desert of the Tih and the country of Moab" in the Quarterly Statement (January, 1871,) of the Palestine Exploration Fund.

5 Robinson's Biblical Researches, i. 202.

and one in Judah (Joshua xv. 44; Micah i. 14), united with Mareshah, and a place called Nezib. The town of Judah is probably the same as that known as Chezib and Chozeba (Genesis xxxviii. 5; 1 Chron. iv. 22), which, in the latter reference, shows Moabite relationships, thus confirming what has already more than once presented itself—the ethnical identity of Moab's earliest population with those of parts of Judæa and the region to the north of Carmel. We do not find any Ziphs in Moab, but Zophim is the name of the place to which Balak brought Balaam that he might curse Israel, and to the north in the land of Gilead is Zaphon (Numbers xxiii. 14; Joshua xiii. 27). This last named town is situated to the west of a wide district called Mizpeh, a name applied to two regions at least beyond Jordan, in Gad and Reuben or of Gilead and of Moab, (Judges xi. 29; 1 Samuel xxii. 3). There is a Mizpeh (Joshua xi. 3,) farther to the north under Hermon; another (Joshua xv. 38,) in Judah; and a still more famous one than any yet mentioned (Joshua xviii. 26,) in Benjamin. With the latter, Gilgal is associated, and this word, with Galilee, is but a form of the name Jehaleleel. Galilee of the Philistines occurs in Joshua xiii. 2, Joel iii. 4, and in the apocryphal 1 Maccabees v. 15. The Septuagint agrees with our English version in translating the Geliloth of Joshua by "borders," but renders the same expression in Joel "Galilaia." A king of the nations of Gilgal fell before the arms of Joshua (Joshua xii. 23), and his territory seems to have been not far from Carmel. With Ziph, since *Zain* and *Samech* are often interchanged, we may also possibly connect Suph (Deut. i. 1), a name of the Red Sea as it is supposed, and intimately related to Baal Zephon (Exodus xiv. 2). A similar form is presented in Saph or Sippai (2 Samuel xxi. 18; 1 Chron. xx. 4), the name of a Philistine giant spoken of together with Goliath of Gath. All that has been said in regard to Ziph applies to the name of the daughter of Jehaleleel, Ziphah, which differs only by the addition of a final *he*. Tiria is very hard to identify geographically. It is possible that Atharim in the south country (Numbers xxi. 1,) and Jattir in Judah (Joshua xv. 48,) may be reminiscences of this brother of Ziph. Beyond Jordan the regions called Bithron (2 Samuel ii. 29,) and Edrei (Numbers xxi. 33,) may give corruptions of this name. Even Tirzah (Joshua xii. 24,) and the place from which the Tirathites of 1 Chron. ii. 55 came, should not be disregarded, although I am far from asserting that these, or

any of the names mentioned, had their origin in that of Tiria. There are, however, geographical names still surviving in the south, such as Dhahariyeh and Datraiyeh near the Khalil, with Hadhira, Taraibeh, Madherah and Tarfa not far off, which, along with Azazimeh, Sufah and Shahabiyeh, give us what, I think, are good indications of the whole family of Achuzam having once resided there. Tell Zif, Wady Khashebeh, Kescifeh and the Jehallin Arabs, all in the same region, lend additional weight to the opinion.[6] Asareel is the fourth of the grandsons of Achuzam, and his name keeps up, to a certain extent, the remembrance of Ashchur. Two Israelite names connect with his,—those of Asriel (Numbers xxvi. 31), a son of Gilead or (1 Chron. vii. 14,) of Manasseh, and of Asarelah (1 Chron. xxv. 2, 14), a son of Asaph. Another Levite is called Assir, a word of the same meaning and form (Exodus vi. 24). In 2 Samuel ii. 9 we find the Ashurites mentioned as a people dwelling near Gilead. They are not Israelites, and may be of this Asareel or of his ancestor Ashchur. Gesenius has shown that the word Asherah, generally translated "grove," is the name of a god, as appears from 2 Kings xxiii. 6, and other passages in which it occurs. It may, perhaps, be associated with the Ashchur line, and possibly with Asareel. Azareel (1 Chron. xii. 6) is, like Asarelah and Assir, a Levitical name. It appears also in 1 Chron. xxv. 18 and Nehem. xi. 13, in connection with the same family; but in 1 Chron. xxvii. 22, it belongs to the tribe of Dan, and in Ezra x. 41 to an Israelite whose line is not mentioned. Azriel agrees with Asriel in pertaining to the tribe of Manasseh (1 Chron. v. 24), although (1 Chron. xxvii. 19,) it also belongs to Naphtali. It is worthy of note that with Azareel among the Levites we find Milalai, Gilalai (Nehem. xii. 36), Galal (1 Chron. ix. 15, 16), Zuph, Zophai or Ziph (1 Chron. vi. 26, 35). The patriarch Levi may have married into the family of Asareel. Since we find that Asareel and Azareel, although words of different form, are related, it is not impossible that the Ezra of 1 Chron. iv. 17, instead of being, as many commentators suppose, a son of Asareel, is the same person. A station of the Israelites named Mosera or Moseroth, without doing any violence to etymology as in former cases, may fitly be a memorial of the youngest son of Jehaleleel. It is mentioned (Numbers xxxiii. 30,) very soon after Tarah. From this place the Mishraites (1 Chron.

[6] *Vide* Note 4; also Ritter's Comparative Geography of Palestine.

ii. 53,) might have derived their name, the Ithrites of the same verse coming from Tiria. It is true these are names of families connected with the Horite Shobal, but the connection may have been by marriage and not by descent. The Philistine valley of Sorek (Judges xvi. 4) may follow the same rule as Sebek, which is the equivalent of Shobal, and exhibit an abbreviated form of Azrikam, a Levitical name (1 Chron. ix. 14; 2 Chron. xxviii. 7), like Azareel and Asarelah.

I cannot doubt that the family of Ezra (1 Chron. iv. 17,) belongs to the line of Ashchur, but it has also certain connections with the family of Etam in Penuel, the father of Gedor, and Ezer the father of Hushah (1 Chron. iv. 4), the latter of whom may indeed be the same person as Ezra, so that it may have come into the Ashchur genealogies by marriage. In Gilead we find Jazer, which is Ezra, Gadara, Succoth and Moorad. Jered's memorial is the Jordan itself, and Joktheel commemorates Jekuthiel. I reserve the full consideration of this family for another paper, although I may occasionally refer to it in passing when its names shed light upon the story of the main line. I may mention, however, that there is a Jehudijeh (1 Chron. iv. 18,) in the valley of Sorek and another in Moab.

In 1 Chron. iv. 13 we read of Kenaz and his descendants. In them I think I have found the posterity of Hepher, the second son of Ashchur,—Kenaz being probably his son. The name designates a tribe of great antiquity (Genesis xv. 19), the abode of which seems to have been east of Jordan, and is doubtless the same as Kenath, a town lying to the east of Hermon, now called Kanneytra. This name, with other Hittite or Philistine appellations, was adopted into the family of Esau, for it is borne by a son of Eliphaz. We find it, however, as the patronymic of Caleb the son of Jephunneh (Numbers xxxii. 12), and accordingly he is mentioned in the genealogy of the Kenezite stock (1 Chron. iv. 15). Ashkenaz (Genesis x. 3; Jeremiah li. 27,) may, by its connection with this name, point out the ancestor of the whole Ashchurite line. Gimzo (2 Chron. xxviii. 18), taken by the Philistines with Timnah in the days of Ahaz, and the Gammadims (Ezekiel xxvii. 11), soldiers of Tyre, may be corruptions of the same word. Jokneam (Joshua xii. 22; xix. 11), near Carmel, from its proximity to Hepher, may also present us with a disguised form of Kenaz. Michmash (1 Samuel xiii. 2), a city of Benjamin, and Michmetha (Joshua xvi. 16), on the borders of Ephraim and Manasseh,—

the latter being situated upon the river Kanah (Joshua xvi. 8), corresponding in name with a Kanah (Joshua xix. 28) not far from Tyre,—can be derived from it without any etymological difficulty. The sons of this Kenaz are Othniel and Seraiah. The former name continued in the family, and (Joshua xv. 17,) designates the son of another Kenaz, who is the brother of Caleb, the son of Jephunneh. From Judges i. 13; iii. 9, we learn that Kenaz was the younger brother of Caleb, and he certainly is not the Kenaz of 1 Chron. iv. 13. I have not found any place in Palestine named after him, with the exception of Sitnah, which may perhaps, like other places mentioned in the history of the patriarchs, have been used (the name being previously in existence) to denote the circumstances connected with its history in the days of Isaac (Genesis xxvi. 21). He may, however, have been the first to name this locality. My reason for supposing it possible that Sitnah might be a reminiscence of the elder Othniel, is that his name in the Septuagint, Godoniel, is the Greek Sthenelus, the Irish O'Donnell, the Scotch Donald, the Sclavonic Stanislas and the Gnostic Sathanael, which gives us the Hebrew Satan without the final *el*. Reasons will yet appear for this remarkable application of a name belonging to the family of one of the most perfect characters of Bible story. In the meantime I may simply premise by stating that the Adonis river of Phœnicia likewise commemorates the elder Othniel and the Tammuz whose worship was abhorred. With Othniel are connected as his descendants Hathath, Meonothai and Ophrah. The first of these is the same word as Heth or Cheth, with reduplication of the final letter. Meonothai is of the same root as Maon, which has appeared as the name of a descendant of an older Caleb, the brother of Jerahmeel. In Ophrah, however, we find something distinctive, and by which we are enabled in a measure to trace the history of his descendants. His name is mentioned (Joshua xviii. 23; 1 Samuel xiii. 17,) as that of a town in Benjamin, for which, in Micah i. 10, we read Beth Leophrah. It also appears (Judges vi. 11; viii. 32,) designating a town of the Abiezrites. The brother of Othniel is Seraiah, and his name is by no means an uncommon one. It may, perhaps, connect geographically with Sirion, the Sidonian name for Hermon. His son was Joab, who was the father of the valley of the Charashim. In Nehem. xi. 35, this valley of the craftsmen is joined with Lod and Ono. Its name occurs again (Judges iv. 2,) as Harosheth of the Gentiles. The wood of Hareth (1 Samuel xxii. 5,)

in Judah is identical in form with the Harash of 1 Chron. iv. 14. Joab, who is called the father of the valley of the craftsmen or Charashim, may have left its title to the Ataroth Beth Joab of 1 Chron. ii. 54. In Gad, or the region of Moab, there were two places called Ataroth (Numbers xxxii. 34,) and Ataroth Shophan (v. 35.) In Ephraim lay another Ataroth, sometimes called Ataroth Adar (Joshua xvi. 5, 7, &c.) It is possible that Ataroth Beth Joab was in the territory of Judah. Ataroth itself as a proper name first appears in Atarah (1 Chron. ii. 26,) who was the wife of Jerahmeel and the mother of Onam either by him or by Shobal the Horite (Genesis xxxvi. 23). The fact of Ono lying in the vicinity of Ataroth and the valley of the craftsmen may indicate some real relationship between this branch of the line of Kenaz and that of Onam. It is worthy of note that Lod and Ono, with the towns thereof, were built by Eber, Misham and Shamed, sons of Elpaal and grandsons of one Shaharaim (an Ashchurite name), who begat Elpaal and other sons in the country of Moab (1 Chron. viii. 8, 12).

There is another family which naturally connects itself with the Ashchurite line. It is that of Arba. This was the name of the city in which Ephron the son of Zohar dwelt, for we learn that Hebron is Kirjath Arba (Genesis xxiii. 2). The only Arba of whom we read is the father of Anak, who was himself the father of Sheshai, Ahiman and Talmai, whom Caleb drove out of Hebron (Joshua xv. 13, 14). Aruboth (1 Kings iv. 10), connected with the land of Hepher, is probably another place which takes its name from this ancient hero. His son Anak gives name to the Anakim spoken of in many parts of the Pentateuch, a remnant of whom survived in Philistia (Joshua xi. 21, 22). These Anakim seem to have descended from the Rephaim who dwelt originally in Ashteroth Karnaim (Genesis xiv. 5), and of whom (Deut. iii.11,) Og is said to have been the last in that land. There was a valley of the Rephaim south-west of Jerusalem (Joshua xv. 8, xviii. 16 ; 2 Samuel v. 18, 22 ; Isaiah xvii. 5), and it is this valley which Jeremiah (xlvii. 5,) connects with Ashkelon. The Philistine family to which Saph belonged is that of the Rephaim (1 Chron. xx. 4). Beth Rapha is mentioned (1 Chron. iv. 12,) as a house descended from Eshton, the son of Mehir, the son of Chelub who is brother of a certain Shuah. Another Rapha (1 Chron. viii. 2,) is given in a remarkable genealogy as a son of Benjamin. We do not find the Anakim positively connected with the Rephaim, but

both of these names designate portions of the great Philistine stock. Geographical connections have already been found for the father of Anak. His own name survived in Taanach in the region of Carmel (Joshua xii. 21), the king of which fell before Joshua, but out of which the inhabitants were not expelled by the Israelites (Judges i. 27). In the last passage quoted and in 1 Kings iv. 12, Taanach is joined with Beth Shean, as also in Joshua xvii. 11. The latter town was in the possession of the Philistines (1 Samuel xxxi. 10), and in the Septuagint version, at Judges i. 27, is called Scythopolis. In Jeremiah xlviii. 45, which contains a quotation of the same song that appears in Numbers xxi. 27, united with the prophecy of Balaam (Numbers xxiv. 16), the "sons of Sheth" (Numbers xxiv. 17) is rendered "sons of Shaon," and is translated in our English version "the tumultuous ones." The preceding expression "crown of the head," or "Kadkod," should, I think, plainly be Karkor, the name of a place east of Jordan (Judges viii. 10), with which Kir of Moab, Kircheres or Kerrek, as it is now called, may connect. The sons of Sheth are the Philistines or Phili-Sheth, as the Hebrew gives it, and the land of Moab where they first dwelt contained a region called the valley of Shittim (Numbers xxv. 1; Joshua ii. 1; iii. 1; Joel iii. 18; Micah vi. 5). The fact of the Shittah being the acacia by no means interferes with this ethnic connection, for the acacia ever remained the sacred tree of the Shethites, and in its very name of acacia commemorates the eldest son of Ashchur. I may mention in passing that Sheth and Baal are found as convertible terms, as in the case of Jerubbaal (Judges vi. 32), Eshbaal (1 Chron. viii. 33), and Meribbaal, who are also named Jerubbesheth (2 Samuel xi. 21), Ishbosheth and Mephibosheth (2 Samuel ii. 8; iv. 4). To return to the Arbathites, we find no reminiscence of Sheshai, the eldest son of Anak; but Achiman may be the progenitor of the Hachmonites (1 Chron. xi. 11), and some unknown city derived from him may have furnished the Tachmonites (2 Samuel xxiii. 8). Talmai appears again as the name of a king of Geshur (2 Samuel iii. 3; xiii. 37). There is a Geshur connected with the Philistines (Joshua xiii. 2; 1 Samuel xxvii. 8), but with which the latter were sometimes at war. The Geshur of which the Talmais were kings was in the north at the foot of Hermon, near Maachah (Deut. iii. 14; Joshua xiii. 13; 1 Chron. ii. 23). It is rather remarkable that the names of Ahiman and Talmon appear among the porters of the tabernacle (1 Chron. ix.

17). The form of the name which we find in Talmon at once leads to Telem or Telaim (Joshua xv. 24; 1 Samuel xv. 4), in the south of Palestine near or in the region of the Geshurites. The connection of the remnant of the valley with Ashkelon (Jeremiah xlvii. 5), the fact of Eschol being near Hebron or Kirjath Arba (Numbers xiii. 22, 23,) and of its earliest name being Mamre (Genesis xiii. 18), together with the identity of Aner and Taanach (Joshua xxi. 25; comp. 1. Chron. vi. 70), would almost lead to a suspicion that the Amorites, Aner, Eschol and Mamre (Genesis xiv. 24,) had contributed to the Philistine stock.

Still another sub-family, more important however in some respects than any yet under consideration, is that of Coz (1 Chron. iv. 8), the mention of which immediately follows the notice of the sons of Ashchur. This Coz was not a son of any Ashchurite, but a grandson of one of them, his father being Ammon, the son of Lot, who married a Hittite wife. There seems to be evidence that Coz himself married Ziphah the daughter of Jehaleleel, from which connection the name of his own daughter Zobebah may have arisen, his son being Anub, or, giving to the *ayin* its full value, Ganub. From him also are derived the families of Aharhel or Acharchel, the son of Harum, and in all probability the Jabez of the ninth verse, who alone is deemed worthy of special commendation. The name of Koz survived in the tribe of Levi (1 Chron. xxiv. 10; Ezra ii. 61, &c.), and there was a valley of Keziz in Benjamin (Joshua xviii. 21). We may also find it in Hukkok (Joshua xix. 34), a town of Naphtali or Asher, along with which occurs Hammon (1 Chron. vi. 76). More natural, however, is the connection with Eth or Ittah-Kazin, a town of Zebulun. Kattath (Joshua xix. 15), another town of Zebulun may simply present a different form of the same root. There is a Kirjath Chuzoth in Moab (Numbers xxii. 39), which might possibly be a reminiscence of the son of Ammon, and a Makaz in Dan (1 Kings iv. 9). Many recently discovered names in Palestine and the country of Ammon present points of resemblance more or less complete with that of Coz. His son Anub gave its name to a town in the mountains of Judah, inhabited at one time by the Anakim (Joshua xi. 21; xv. 50). The nearest name of a person is that of a son of Hadad the Edomite, by Tahpenes the daughter of Pharaoh (1 Kings xi. 20,) called Genubath. I think it not impossible that Nebo of Moab (Numbers xxxii. 3; Isaiah xv. 2; xlvi. 1,) and Nebo

of Judah (Ezra ii. 29; Nehemiah vii. 33,) may come from the same word, having lost the initial *ayin*. Nibhaz, the idol of the Avites (2 Kings xvii. 31), which the Jewish interpreters imagine to have borne the figure of a dog, is no doubt this Anub, corresponding with the Egyptian Anubis. A city of Benjamin called Nob is mentioned (1 Samuel xxi. 1; Nehemiah xi. 32; Isaiah x. 32), which, like Nebo, especially from its connection with a Judean Madmannah, in the latter reference answering to Madmen of Moab, may be a corruption of the name of the son of Coz. Even Ishbi-benob, the son of the giant (2 Samuel xxi. 16), may have taken his name from the Rephaim or Anakim who were expelled from Anub. The sister of Anub was Zobebah. I have not discovered any Bible connection for this name, unless it survive in Baal-Zebub, the god of Ekron; but Kubeibeh near Ziklag and Sukkariyeh (an Ashchurite form), Kubab not far from Enab and Nuba, and many similar names in Palestine, commemorate this Ammonian princess.[7] Harum suggests Hermon and many similar names, as well as the Greek Hermes. His son Acharchel bears a name akin to that of Aharah, a son of Benjamin (1 Chron. viii. 1), or rather, as it seems to me, of Jamin, son of Ram (hence Ha-ram), mentioned in 1 Chron. ii. 27; vii. 6, the connection being by marriage, perhaps with Zobebah. A similar name, which, like the majority of those mentioned in Scripture, is susceptible of a Hebrew meaning, although it by no means follows that such was its interpretation, is that of Barachel the Buzite, of the kindred of Ram (Job xxxii. 2), who has been unnecessarily supposed to descend from Buz, the uncle of Aram (Genesis xxii. 21), because Huz, the brother of this Buz, may have given his name to the place in which Job dwelt. There is also a Berachah among the mighty men of David (1 Chron. xii. 3). There are several reasons for connecting with the name of Aharhel that of Barzillai the Gileadite (2 Samuel xvii. 27, &c.) The root of this name is Barzil, signifying "iron," and the same metal was sacred to the Assyrian Bar-il or Hercules, who is united with Ninip or Anub.[8] The region inhabited by Barzillai was (2 Samuel xix. 31,) Rogelim in Gilead, a name which connects at once with Acharchel. In Ezra ii. 61, the children of Coz and those of Barzillai are spoken of together, the Levites bearing these names having married into the

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[7] Ritter, iii. 248; iv. 235.

[8] Rawlinson's Herodotus; appendix, Book i.; Essay x.

Gentile families which originally bore them. It is possible that Barachel the Buzite may be descended from the Buz of 1 Chron. v. 14, who is reckoned among the Gadites, and who dwelt in the land of Gilead. Karkor in the same region, already connected with the family of Sheth, and Karkaa in the south of Palestine (Joshua xv. 3), may not unreasonably be supposed to relate to this distinguished name as well as the Kirs of Moab. Maralah in Zebulun (Joshua xix. 11,) strengthens the evidence already afforded by the presence of Cozite names in the territory of that tribe. Nergal, the god of the Cuthites (2 Kings xvii. 30), is appropriately mentioned in that part of Scripture, together with his near relative Nibhaz of the Avites. The Cuthites are themselves not improbably the descendants of Coz. David sent presents of his spoil to the people of Rachal, a town in the south of Judah, who are distinguished from the Israelites equally with the Jerahmeelites and Kenites. Taralah of Benjamin (Joshua xviii. 27), mentioned together with the valley of Keziz, may be a later form of the name of Aharhel. It has the local prefix which we find in Taanach and other names of places derived from proper names, and which may be the remnant of the Coptic *Eit*. The only other member of the family of Coz, or whom we may presume to be of his family, is Jabez. In the last verse of 1 Chron. ii. we read of a place called Jabez, inhabited by three families of Kenite scribes. This place is mentioned nowhere else in the Bible. There is, however, a Thebez (Judges ix. 50,) near Shechem, which is of the same form. I am convinced, however, that the Jabez mentioned in 1 Chron. ii. 55 is Thebes in Egypt, which is read in hieroglyphic without the T prefix, and which is the city of Ammon, the father of Coz, and ancestor of him who was more honourable than his brethren, the Palestinian Thebez being a mere reminiscence of the earlier Egyptian city. A shortened and corrupted form of the name of Jabez is found in the Jabesh by which a portion of Gilead was distinguished from other portions (Judges xxi. 8, &c). Abez in Issachar (Joshua xix. 20,) is a nearer and more natural variation of Jabez. Many names in Jiph, such as Jiphtah, may be derived from this word. A hardened form of Jabez, with the common affix *el*, would furnish us with Kabzeel or Jekabzeel (Joshua xv. 21; 2 Samuel xxiii. 20; Nehem. xi. 25). This is the more probable, since in Ephraim near Thebez, if it be not identical with it, there was a Kibzaim (Joshua xxi. 22). Magbish, mentioned along with Nebo (Ezra ii. 30), has the

same meaning, that of collecting or congregating, as the former words, and is no doubt of the same origin.

The family which follows that of Coz I have already alluded to in connection with the Rephaim. That it is also Ammonian appears from the mention of Ir Nahash or the city of Nahash, a place found in no part of Judah, and all the relations of which are Ammonian (1 Samuel xi. 1; 2 Samuel x. 2). In 2 Samuel xvii. 27, Shobi, the son of Nahash, and Barzillai the Gileadite, with a certain Machir whose name may have come from Mehir the father of Eshton (1 Chron. iv. 11), are spoken of together as friends of David in his time of adversity when he passed over Jordan. It is hard to say who the Shuah is that is here mentioned (1 Chron. iv. 11). Judah married the daughter of a Canaanite whose name is almost identical with his (Genesis xxxviii. 2), and Chelub may have been his brother; but if an Ammonian, why should he be called a Canaanite? The name Chelub occurs again (1 Chron. xxvii. 26,) as that of the father of one of David's servants. Now David had Ammonites in his service (1 Chron. xi. 39), and Chelub may have remained an Ammonite name. Gilboa in Issachar may possibly relate to this word, with Chelbah and Achlab in Asher (Judges i. 31), and Chelbon in Syria (Ezekiel xxvii. 18). Mehir does not occur again in the Bible, but a closely related word is Machir, the name of a son of Manasseh. We have already met with another Machir of Lo-debar in Gilead, who is mentioned along with Barzillai and Shobi, the son of Nahash. To his family and that of Mehir or Mechir must have belonged Hepher the Mecherathite (1 Chron. xi. 36). It is not improbable that Maharai the Netophathite, mentioned together with Cheleb, another Netophathite (2 Samuel xxiii. 28, 29), his name being in meaning identical with that of Mehir, may be of the same line. I have not yet found any name of person or place that will represent Esht on Eshtaol and Eshtemoa are similar forms, but do not appear to be more than philologically connected. For Beth Rapha I have already suggested a Philistine relationship. Paseah is a name that occurs not unfrequently. It is remarkable that in the family of Asher (1 Chron. vii. 33), which contains more than one Shua, there should be a Pasach and an Ashvath. The appearance of Paseach among the Nethinim has already been noted. Tiphsach (1 Kings iv. 24,) or Thapsacus on the Euphrates, and a place of the same name (2 Kings xv. 16), spoken of in connection with Tirzah and Samaria,

are derived from Paseach. It is also very likely that Pisgah of Moab (Numbers xxi. 20, &c.,) comes from the same word, and that Ashdoth prefixed to it is a form of Eshton. With Paseah as a son of Eshton we find Tehinnah, the father or founder of the unknown Ir-Nahash. In Numbers xxvi. 35 and 1 Chron. vii. 25 we have a Tahan given as a descendant of Ephraim, who, strange to say, descends from a Rephah. Tochen, a town of the Simeonites (1 Chron. iv. 32), may have taken its name from Tehinnah. Taanath Shiloh (Joshua xvi. 6), a region in Ephraim, might possibly be a reminiscence of Tahan or Tochen in the south. It is said concerning this family, "these are the men of Rechah." The word Rechah may be the same as Archi, a town's name in Ephraim (Joshua xvi. 2), from which, or from the family represented by which, Hushai the friend of David came (2 Samuel xv. 32). Since Thapsacus is derived from Paseach, it is not improbable that the Archevites of Ezra iv. 9 are also the men of Rechah.

The only other family to which I at present direct attention is one that is twice mentioned in the Book of Chronicles, that of Mareshah. In 1 Chron. iv. 21 he is made the son of Laadah, and represented as a grandson of Shelah, the son of Judah, by the daughter of Shuah, the Canaanite. In 1 Chron. ii. 42 his children are counted to Caleb, the brother of Jerahmeel, along with Mesha, the father of Ziph, who has already been under consideration. The only son who is definitely given him is Hebron, but from this son came Korah, Tappuah, Rekem and Shema. Three generations are reckoned from Rekem,—Shammai, Maon and Beth-Zur. Two are reckoned from Shema,—Raham and Jorkoam. The name Laadah does not occur again, but Laadan is a son of Tahan, the Ephraimite (1 Chron. vii. 26), and appears also among the Levites (1 Chron. xxiii. 7, &c.) Similar names in the family of Ephraim are Eladah and Elead (1 Chron. vii. 20, 21). Merodach Baladan in the second part of his title agrees somewhat in form with Laadah, the first part being a corruption of Mareshah. Eldaah, a son of Midian, bears a somewhat similar name, and the Midianite character of Rekem and Zur have already been alluded to. It is quite possible that the Zur here given as a son of Maon might be the Zur of Numbers xxv. 15, taking Laadah as the same person with Eldaah.

Abraham

	Isaac	Midian	
	Jacob	Eldaah	
	Judah	Mareshah	
	Pharez	Hebron	
	Hezron	Rekem	
	Ram	Shammai	
	Amminadab	Maon	
(Numbers x. 14.)	Nahshon	Zur.	(Numbers xxv. 15.)

As I shall yet prove that Mareshah was the contemporary of Joseph, though somewhat older than he, this identification of Laadah and Eldaah is rendered more probable. However, I do not by any means possitively assert that they are the same. There are philological difficulties in the way which I would not, without the strongest reasons, overstep. The name of Mareshah appears frequently in the Bible, denoting a town in Judah (Joshua xv. 44; 2 Chron. xi. 8, &c.,) connecting with the Ziph region, and a place where Micah the prophet was born, termed Moresheth-Gath (Micah i. 14). Merodach, in its Arabic form of Mirrikh, may, as I have already stated, easily be a corruption of this word. Mars, the Latin form of the name of the same god, is nearer still, and Ares of the Greek is simply Mareshah without the prefix M. The son of Mareshah possessed one of the most noted of all regions in Palestine, that of Hebron. It is as difficult to say at what particular time the city of Mamre (Genesis xxiii. 19) became Hebron, as it is to tell when it acquired the name of Kirjath Arba, or what relations existed between the families represented by these names. To decide these questions we would require a full history of the time during which the Israelites sojourned in Canaan and dwelt in Egypt, which I trust will soon be ours. The only other Hebron of whom I find mention is a son of Kohath, the Levite (Exodus vi. 18, &c). Of the sons of Hebron, son of Mareshah, Korah bears the same name as a son of Esau by Aholibamah. Also (Exodus vi. 21,) there is a Korah who is a nephew of Hebron the Levite. I have already queried Kerrek of Moab for Karkor of the Philistines and Acharchel. The meaning of the word as it appears in other languages (*e.g.* Gargarus, the snowy) would rather justify its

connection with this Korah, whose name signifies *ice*. Tappuah named at least two towns, one in Judah (Joshua xii. 17; xv. 34,) and another on the borders of Ephraim and Manasseh (Joshua xvi. 8). We have already found Rekem as the name of a Midianite king (Joshua xiii. 21), but he was much later than the son of Hebron. There is a Rakem in the line of Manasseh (1 Chron. vii. 16), as there are Laadah-like names in the family of Ephraim, suggesting some relationship between the houses of Joseph and Mareshah. In Benjamin (Joshua xviii. 27,) we find a town called Rekem. The son of Rekem was Shammai. Many persons bore this name; among others a son of Onam mentioned in the same chapter (1 Chron. ii. 28), and a descendant of Ezra (1 Chron. iv. 17). Little, therefore, can be gleaned from it but the possibility of some connection among the families in which it is found. Maon has already been under consideration. Beth Zur is mentioned (Joshua xv. 58) as not far from Hebron, Beth-Tappuah and Maon. It was one of the cities rebuilt or fortified by Rehoboam (2 Chron. xi. 7), Mareshah and Hebron being two others. Shema, the brother of Rekem, may, from the form of his name, containing as it does a final *ayin*, have been the progenitor of the Shimeathites of 1 Chron. ii. 55; but this honour he must at present share in hope with Shema of Joel (1 Chron. v. 8,) and Shema of Elpaal (1 Chron. viii. 13). There was a town of this name in the south of Judah (Joshua xv. 26). He was the father of Raham, a form that appears once more in the Rehum who ruled under Artaxerxes in Samaria (Ezra iv. 8), with whose name it may or may not have relations. But Jorkoam, the son of Raham, in all likelihood gave Rakkon and Mejarkon to the territory of Dan, and perhaps Rakkath to Naphtali (Joshua xix. 46, 35). The Zerka river of travellers in the Holy Land, which they place between Joppa and Dor, must be a reminiscence of the "yellow" stream which Jorkoam named, and a still more perfect form of which is presented in the Zerka Main of the land of Moab that flows into the Dead Sea.

The eight families passed in review are intimately connected in the history of Egypt and of the so-called Shepherd Kings, both in that land and in Palestine and the surrounding countries. Those of Jerahmeel and Etam (1 Chron. ii. 25; iv. 3,) also appear in the history, but more obscurely and in a manner that does not warrant the complications which would necessarily arise from their introduction at this time.

It is tiresome to be compelled continually to explain and defend one's mode of procedure in connection with any discovery; but as there are many who, granting much of what I have already stated, will refuse to listen to more satisfactory evidence for ethnical identity, because it unites sacred and profane narratives or records, and embraces the antiquities of a great part of the civilized world in its comparison, I find it necessary again to state as briefly as possible the grounds on which my inductive argument proceeds, and the reasons which justify its mode of procedure. These grounds are as follow:

I. *In regard to the Bible.*—That although, in the postdiluvian period of which it treats, it deals principally with the history of the Israelites and their progenitors, it nowhere ignores surrounding peoples and Gentile families with whom they came into contact in Palestine and other lands; that it gives genuine historical notices of these, and, at times, genealogies more or less complete, such as those of the Horites; that it expressly asserts the Egyptian origin or derivation of certain nations inhabiting Palestine, as the Philistines and Caphtorim; that it mentions peoples as inhabiting Palestine who have been proved to be of Japhetic or Indo-European origin, *e.g.* the Cherethites or Cretans; that it indicates the presence in Palestine of many nationalities as late, at least, as the time of David, which are not of Israelitish origin, and which are not necessarily Hamitic or Shemitic, *e.g.* the captains or chief men of David's army; that the first chapters of the First Book of Chronicles contain many Gentile genealogies, giving presumptive evidence that most of these genealogies are Gentile; that the line of Asshur, the father of Tekoa, there mentioned, exhibits clear relationship with the Philistine stock; that the geographical names of the Bible, designating places in Philistia and in the whole of Palestine are, as Dr. Hyde Clarke has shewn, equally the property of the classical areas of Greece, Italy, Asia Minor, &c.; that it affords no evidence, but rather the contrary, of the Japhetic or Indo-European families having passed beyond the bounds of the region with which its early history is concerned.

II. *In regard to Egyptian history.*—That, spite of the records which have been handed down from antiquity, the ancient monuments recently deciphered, and the vast amount of labour expended upon the elucidation of both of these, the history of Egypt is almost a *terra incog-*

nita—the greatest uncertainty prevailing as to its chronology, the order and succession of its dynasties and sovereigns, as well as to the origin of its varied population; that its most intimate relations were with Palestine, and anything tending to throw light upon the history of the latter country must necessarily be of value to the Egyptologist; that its ruling families from the beginning of monarchy were Caucasian, and came into Egypt from the north-east; that the first of these families in point of order and importance was that of the Auritae or Horites; that the Shepherd Kings shew intimate connections with the tribes which, after their expulsion, waged constant wars with the Pharaohs, and whose residence was found principally in Philistia and the land of Moab; that there is presumptive evidence of no ordinary character for the identity of the Philistines and the Shepherd line; that the records of Egyptian monarchy show many remarkable analogies with the order and character of the names in the fourth chapter of the First Book of Chronicles, some of which (those of the Horites) have been proved to belong to Egypt; that there was in Egypt a family of Shethites persistently opposed to the Horite dynasties.

III. *In regard to other histories and mythologies.*—That, while the ancient records of historical peoples (Phœnicians, Assyrians and Babylonians, Arabians, Persians, Indians, stocks of Asia Minor, Greece, Italy, &c.) do contain names and traditions which the Neo-Platonic school of mythologists can torture into solar allegories and elaborate systems of nature worship, there is no evidence that such was the origin of these names and traditions, and there remains, after the utmost efforts of their ingenuity have been put forth upon them, an immeasurably larger residuum of unresolvable facts bearing all the marks of historical origin; that the history of these various peoples is so indissolubly bound up with their mythology that it is impossible to tell where one ends and the other begins, and that he who allegorizes the one is logically obliged to do the same with the other; that the mythologies and early histories of all these peoples have well established points of connection one with another, extending to identity of names, genealogies and related circumstances, so that Faber's conclusion, which refers this to the fact of their having dwelt at one time in intimate contact, is the only possible solution of the problem presented by comparative mythology; that all these mythologies, or corrupted fragments of history, refer to Egypt,

Palestine and neighbouring regions as the earliest home of the nations among whom they are found; that the recent discoveries in Nineveh, Babylon and parts of Chaldea have established the historical character of many so-called myths; that the monuments of Asia Minor, Greece, Italy, India, &c., are more recent by many ages than those of Egypt, Assyria and the intervening countries, which, however, they more or less resemble, not because the civilization of the former was later in developing itself, but because the home of the peoples who afterwards occupied these lands was for those many ages within the latter area, and their national existence was during that time merged in that of these eastern empires; that, however, the geographical names and ethnical designations of these peoples are found upon the ancient monuments of Egypt, Assyria, &c., not referring to tribes dwelling at a great distance but within an area bounded by Taurus and Anti-Taurus on the north, a line drawn from the Caspian to the Persian Gulf on the east, the Mediterranean and Libya on the west.

As to my mode of procedure in making and stating the discovery with which this paper is concerned, it may be termed philological, inasmuch as it is based upon a comparison of names of men and places mentioned in different histories and mythologies and found in different parts of the world. Such a comparison of names has always been lawful for the student of history. More than that, it has often been the only process possible, both in regard to ancient documentary evidence and the comparison of it with that which is monumental. In pursuing such a plan I simply tread in the footsteps of the most distinguished and safe of ancient and modern historians. If, however, it be objected that I treat mythological records as historical, I call for proof, which has never yet been given, that they do not contain historical fact, and marshal as authorities for the opinion I hold of them almost every historian, ancient and modern, who deserves the name. Bournouf was permitted to establish the original unity of Aryan Persia and India in his proof that Djemschid and Yama are one and the same. This connection of the Veda and Zendavesta in these and related names has been fitly termed a most brilliant discovery. Yet it was of the same character as that which I have already published in my essay on "the Horites," and as that to which I now direct attention. The value of his identification lay in this, that not one but several related names were found by him in the same order and sustaining the same

relationships in the two records. I propose to exhibit a comparison far greater, extending to many records, not of a few but of a perfect network of names historical and geographical, vouched for not by mere doubtful documents but, along with such, by the truthful statements of the Bible, and by the evidence of existing monuments in Egypt and neighbouring lands. Much has already been achieved by partial historical induction from names within limited areas, but false notions in ethnology and philology have hindered that fuller induction to which I have devoted my leisure, and the result of which must be the correction of these cherished opinions, based as they are on hasty generalization and traditional prejudice. I have not rested in mere similarity or identity of nomenclature, but have used these as a necessary introduction to wider and more satisfactory harmonies, which together bring the foundations of a cosmos into the chaos of the past. My method is that of science, and the result at which I aim, simple historical truth, not the establishment of any system whatsoever. Hence I seek the fullest investigation into the problems which have sought their solution at my hands, and will gladly welcome the correction of errors of judgment or any new light which may be shed upon the facts or other materials with which I deal. But I dare not allow any unsettled philology, which takes no account of the Semitic languages on the one hand or the Indo-European on the other, to dictate in regard to connections that lie beyond its sphere, an allegorizing system of mythology to bar the way to truth which it rejects, or a false chronology to check the progress of a work that will yet establish the true. In setting forth the story of the Ashchurites I propose, first of all, to show that it is connected with that of Egypt, afterwards to collect from the legends of other peoples all that may shed light upon their national and individual history, and, finally, returning to the record which supplies us with a reliable account of their families, to recover from it their true position among the races of antiquity.

II. THE SHEPHERD KINGS IN EGYPT.

In my former paper on the Horites I endeavoured to show that these original dwellers in the land which afterwards fell to Esau and his descendants were the Auritae and the Ægypti of the Old Chronicle. The Ægypti I identified in part with the Caphtorim, which Mr. Poole had done long before. Between these two dynasties, if we may so call them, the Old Chronicle mentions the Mestraei. These are no Bible

Mizraites, but the representatives of the Philistines who also came out of Egypt. There were eight of them according to the Chronicle, and these are the seven Cabiri with Eshmoon. The Old Chronicle is not far from the truth. Whoever Eshmoon, the eighth, may be, the seven who preceded him are the seven sons of Ashchur, the father of Tekoa, the name Mestraei coming from that of Ahashtari, the fourth son of the family of Naarah.

The name of Ashchur could hardly be better preserved than it is in Egyptian story. He is Osochor, or Hercules.[9] As the god of Hermopolis, he occurs under a form similar to that presented in Zereth-Shahar. He is Sahor, and with him are there united Thoth, whose name we will yet find to connect with Achuzam, and Timan-hor, his son Temeni.[10] Let me premise so far for the sake of explaining another name of this famous hero. The Cabiri, of whom he is the head, are also the Dioscuri and Tyndaridæ, and these names find their Egyptian equivalents in Dashour (Sakkarah with the feminine pronoun) and Tentyra. Peschir Teuthur is accordingly the protecting deity of the latter city, the masculine article changing Ashchur to Peschir.[11] Maceris, another name for the Egyptian Hercules,[12] may have come from a form like Moscheris, the seventeenth of the Theban Kings of Eratosthenes, and is useful as exhibiting the prefix M which we find in the designation Mestræan and in the Misor of Sanchoniatho, who is the father of Taaut. It likewise connects with Mysara, a name of Egypt, and is perhaps some such word as the Am of Amalek, meaning "people." I have no hesitation in referring the Isaiacus whom Plutarch gives as the father of Typhon to Ashchur.[13] The form Peschir and the Bushur Ashurs of Assyria lead at once to the well known classical name Busiris. Osiris, we are told, made him king of the maritime region bordering on Phœnicia. To him in a time of national danger the prophet Phrasius, from Cyprus, recommended the slaughter of strangers, and for this he was slain by Hercules together with his son Amphidamas and his herald Chalbes.[14] He is connected with Antæus, who is the Nechaoth of

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[9] This name was known to the ancients. Banier's Mythology and Fables of the Ancients. London, 1740, Vol. iv. p. 123.

[10] Osburn's Monumental History of Egypt, ii. 22, 24.

[11] Lepsius' Letters from Egypt, 124.

[12] Guigniaut, Religions de l'Antiquité, ii. 248.

[13] De Isid. et Osirid. xxix.

[14] For particulars regarding Busiris see Diod. Sic., Apollodorus, Plutarch, Isocrates, or the collected facts in Guigniaut, i. pt. ii.

Theophilus, and the Horite Manahath, who ruled either at Zoan or Mendes over the Mendesian nome.[15] To the Rev. W. B. Galloway is due the credit of finding the name Asshur in that of Busiris.[16] Busiris is found in many classical authors. Diodorus gives eight of that name, the last of whom he makes the founder of Thebes.[17] He is also the Vexoris of Justin,[18] and the Aiskus of Bar Hebræus, who is plainly the head of the shepherds, since he is followed by Susunus, Tricus, Satis and Apaphus.[19] Manetho must of necessity mention this early monarch of the land whose dynasties he has recorded at such length. We find his name accordingly, although I believe that here it denotes his son Ahashtari or Sesostris, in the Sesochris who appears eighth in the second dynasty. A similar form, designating probably his great grandson Asareel, is Mesochris of the third. It is, however, in the Usercheres of the fifth dynasty that we discover the name of the ancient Hercules, and him Lepsius has found at Gizeh.[20] He is the first, the ancestor, of the so-called Sesortasens, the latter part of the word being perhaps a form of Tekoa, like the *tiyach* of Shagarak, king of Assyria, and the *tasi* of the Arabs. Thus Usecheres (for this is the true form of the name) is no mythical character, but probably a sovereign, at all events the ancestor or father of several sovereigns in Lower Egypt. Osburn errs in supposing that he is Sesostris, but the error is not great, inasmuch as he is the father of Sesostris, who, if Osirtasen III., has left traces at Dashour, a most fitting place, since it commemorates his father's name. Not only is he associated with Sesostris or Achashtari, and, as we have seen, with Temeni or Timan-hor, but as Usercheres of the fifth Manethonian dynasty, he precedes Sephres or Hepher, and at Gizeh appears with Aseskef or Achuzam. Gizeh, which is a corruption or abbreviation of the name of his eldest son by Naarah, and Saccarah, a form of his own, are the regions in which mention is specially made of him. He is spoken of as a highly distinguished monarch and the erecter of a pyramid. It is also worthy of note, as

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[15] Ad Autolycum, ii. 31. It is interesting to find Antæus and Mendes connected by Jablonsky (Guigniaut i. 423). Nechaoth or Antæus of Mendes, who, as the first ruler of Egypt is the same as Menes, is undoubtedly Manahath the Horite, and must have been a contemporary of Ashchur.

[16] Egypt's Record of Time to the Exodus of Israel.

[17] Diod. Sic. i.

[18] Justin i. i. 6; ii. iii. 8.

[19] Bar Hebræus in Cory's Ancient Fragments.

[20] Bunsen ii. 180.

we have found him in mythical story connected with Manahath, that he was worshipped together with Onam or Onnos, the Horite, like Manahath, a son of Shobal. The Busirite nome lay immediately to the west of the Mendesian, so that geography aids tradition in uniting the father of Tekoa with the son of Shobal.[21] There were several cities of the name of Busiris in Egypt, and in regard to all of them it must be observed that they were sepulchral towns. It is quite unnecessary to derive Busiris from Taphosiris, inasmuch as the person whom the name represents with the simple prefix of the masculine article is also called Ptah Soccari, and appropriately connects with Sakkarah.[22] I do not think that he is Osiris, who I would be inclined to believe is the eldest son of Atmoo or Etam, although the family of Ashchur has relations with that in which Jezreel occurs.[23] The whole funereal system of the Egyptians connects with Ashchur and his line. I am not sure that Ptah gives us a form of Tekoa with the Coptic article, although the Phœnician Pataikoi, who are identical with the Cabiri, are of that god, and the Greek *theke*, the sepulchre, is not without Coptic relations.[24] The Pataikoi likewise are the pygmies who were on the side of Antæus and Busiris. I do not doubt, however, that the hall of the Taser,[25] whither the dead wend their way, is the happy abode of the Scandinavian Aesir, or the resting-place of the Ashchurites. This will appear more clearly in the sequel.

Ashchur, who gave the name Mysara to all Egypt, also for a time left the Nile as his memorial, till his grandson Jehaleleel superseded him. That river was anciently called Siris, and this word is the same as the Bible Shichor (Jeremiah ii. 18, &c.), in which it is impossible not to recognize the name of Ashchur.[26] Besides the places called Busiris, Sakkarah and Dashour, the Beni Asser of D'Anville may be

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21 Osburn, i., 400.

22 Typhon and Ptah Soccari are the same. Kenrick's Ancient Egypt under the Pharaohs, New York, 1852, i. 14.

23 Jezreel, the sown of God, whose name was afterwards given to an important tract in Palestine, and who is mentioned in 1 Chron. iv. 3 as a son of Etam, is the god of seed among the ancients, the Osiris of Egypt, his name being the explanation of the Greek legend of the Spartoi and others of like character.

24 The very Hebrew expression "Father of Tekoa" (Abi Tekoa) may be the original of the word Pataikoi, which is intimately related to Soccari and which reappears in the Indian Apitaka.

25 Dr. Birch on a remarkable inscription of the twelfth dynasty. Transactions of the Royal Society of Literature, Vol. v., New Series.

26 Schol. Apollon. Rhod. iv. 391.

a reminiscence of his family.[27] Tasacarta or Tacasarta may memorialize him or his son Achashtari, but Mount Ascar preserves his name to the present day. Djebel Attaka does not meet us in the ancient geographies of Egypt, but, lying as it does over against Sakkarah, I cannot but think that it is an old name revived, as is so frequently the case in the east, being a Tekoa with a mere vowel prefix. The other names borne by this range are, as we shall see, all connected with Ashchur's family. I have not found any memorial of Helah, the wife of this distinguished monarch, but the fame of Naarah or Nagarah, who left her name to Naarath or Nagarath of Palestine, survives in the well-known city Naucratis, which, appropriately enough, lay in the Saitic nome. I should mention that the Aphthitic nome must, however unlikely it may appear, be derived from the very Hebrew expression Abi Tekoa, being identical with the Bible geographical name Jiphthach.

I have already indicated that the Bible appellation of the eldest son of Ashchur presents difficulties in its connection with Egyptian and other equivalents. The root Achuz, without the terminations in *am* or *ath*, occurs most frequently, but there are cases in which the *zam* forms an important part of the word, while in others *z* is naturally changed to *d* and the final *m* made an initial letter, thus completely disguising the original name. From Achuzam is derived the word *hak*, signifying "a leader," and also the more complete expression *Hyksos*, which Josephus writes Ὑκσσώς. The name Hyksos was thus originally confined to the family of Ashchur's first son. He likewise gave their names to the mountain and region of Casium, and to the place of the shepherds called Sachisu. His father and he fitly appear in company, leaving their seal of nomenclature on Sakkarah and Gizeh respectively, as well as on Mount Ascar and Mahazeh, which lies to the south of it. The name of Achuzam was carried (doubtless long after his death) into Upper Egypt, and survives in the Mt. 'Aias and Wady Jasoos in the region of Cosseir. After the expulsion of the Shepherds, mention is made of his line on the Statistical Table of Karnak, in which Tothmes III. speaks of Jukasa in the land of the Tahae or Taochi.[28] Mr. Cox has identified the Indian Ahi with the Sphinx of Grecian and Egyptian story.[29] The Egyptian Sphinx proper is at Gizeh, and bears the

[27] D'Anville Geog. Anc. 211.
[28] Kenrick, ii. 192.
[29] Mythology of the Aryan Nations, ii. 326, &c.

name of Sephres, or Hepher the brother of Achuzam, but connects with the latter, of whom it was probably a monument, in the Greek name Phix, whence Phacussa and Tell Phakus (the Phikean hill) in the neighbourhood of Tacasarta. Phix, Phacussa, &c., are simply Ahi or Achuzam with the prefix of the article, and Chabrias near Tell Phakus explains the relations of Sephres and the Sphinx. The Sphinx, although it bears the name of Sephres, is sacred to Athom or Atmoo. This, I think, arises from the fact that Achuzam married his daughter Zelelponi. Certain it is that he did marry into the family of Etam, but whether his union was with this princess or with a daughter of Jezreel I cannot well decide. As the myth of the horsemen which connects the Dioscuri and the Asvins is related to that of the Sphinx, I may note here the connection of *ses* the horse and *shos* the shepherds, Achuzam being pre-eminently the horseman of antiquity. This, however, I merely throw out as a hint to the student of Egyptology, and for the sake of future identifications and ethnological connections. The forms in which we find the final *zam* of the name of Ashchur's eldest son are Sem Hercules, Sumes Hermes, Smu, a name of Typhon, all of whom are identical with Hercules Assis. Sem, like his father Ashchur, is said to have been made a governor of part of Egypt by Osiris, and in him we recognize the Macedon, whom Diodorus makes, together with Anubis, a son of that monarch.[30] In Macedon we find the *z* of Achuzam changed to *d* and *m* prefixed as in the case of Mysara, Mestræi, &c. The word survives to the present day in the Mokattam mountains, belonging appropriately to the range of Attaka. A more difficult disguise to penetrate is that which is presented by the name Thoth. Indeed I do not yet feel altogether sure that it represents Achuzam himself, but it is most probable that it does. In the two lists of Syncellus, Menes, who heads each, is followed by Athothes and Curudes respectively. Curudes I shall yet show to be Zereth, the eldest son of Ashchur by Helah, and the rival of Achuzam, who, taking the connected name of Achuzzath, would be known as Ahutath among the Egyptians. In the genealogies of Sanchoniatho, Misor, who is Ashchur, is the father of Taauth.[31] In Hermopolis also Thoth accompanies Sahor, who is Ashchur, and Timan-hor, who is Temeni, while he is also recognized as the head of the Cabiri, who

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30 Guigniaut, i. 433.

31 Sanchoniatho's Phœn. Hist., by Cumberland. London, 1720, 28.

take their name from Hepher or Chepher. In Agathodæmon, which is the Greek name of Tat or Thoth, we have but a lengthened form of Achutam or Achuzam.[32] Manetho's first dynasty places Athothes at Memphis in the region of Gizeh, Busiris and Sakkarah, and gives Ouenephes, or the Anubis, who in Diodorus accompanies Macedon, as the second from him. But there is no doubt that he is the same as the Beethos or Bochus, who heads the second dynasty, an earthquake in both reigns helping to mark the identity. In Bochus, as Eusebius gives it, we find a form the same as that which appears in Phacussa. Once more we discover him, though sadly out of place, in the third dynasty, where, as Aches, he immediately precedes Sephouris or his brother Hepher. He may be the Sesonchosis who stands first in the twelfth dynasty, Sesostris, or his brother Achashtari, being the second from him. Josephus mentions an Asses as the last of the Shepherd line. That there was one of this name at the end of the dynasty of the Mestraeans is not to be denied, but the most famous monarch who bore it is to be found at the commencement. He is also no doubt the Susunus of Bar Hebræus, who follows Aiskus or Ashchur. To come to what rests on a more solid foundation, the name of Achuzam has been found on the monuments. At Gizeh and Sakkarah he appropriately appears as Assa Tatkera or Aches or Aseskef, the son and immediate successor of Usecheres, and in company with Sephouris or Sephres and Sesostris. In the chamber of Karnak and on the Tablet of Abydos the names of Ashchur as Usecheres, his three sons, Achuzam as Aches, Hepher as Sephres, and Achashtari as Sesostris or Nesteres, together with the Horite Onam as Onnos, occurring in regular order with all the marks of contemporaneousness, present such a proof of the correctness of my inductive process from what were at first mere mythological data as cannot be lightly called in question.[33]

I have no direct monumental evidence that Jehaleleel is the son of Achuzam or Aches. Geographical facts show striking analogies between southern Palestine and the land of the Pharaohs. Sile, Sele or Selahieh, connecting with Tell Phakus, gives promise of

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[32] That Agathodæmon is no Greek word appears from its being mentioned in the Book of Nabathean Agriculture as Aghathadimun.

[33] The Scriptural and Monumental lists thus coincide:

Ashchur,	Achuzam,	Hepher,	Temeni,	Achashtari,
Usecheres,	Aches,	Sephres,		Nesteres, or
Saher,	Thoth,	Kheper,	Timan-hor,	Sesostris.

the fuller form Silsilis in the Thebaid, but nearer than all to the original is Mt. Kalil lying south of Mahazeh, as that reminiscence of Achuzam lies below Mt. Ascar. The mountains called Silsilis and those termed Kalil commemorate the same person as those in the neighbourhood of the Azazimeh named Helal and Dhallal. The Coptic name of Silsilis is Golgel, reminding us of the Gilgals of Palestine already associated with Jehalaleel. It will be remembered that the Shittim or Acacia was in both these names connected with the line under consideration, representing Sheth and Achuzam. It is the Gilgil, Sealeh or Sayal, and under these forms unites Jehaleleel with Achuzam and the Shethites. But we have found the words Khalil, Nahaliel, &c., to be variations of the same name, designating rivers; and, most appropriately, at Silsilis the river Nile is known to have been an object of worship. It is an easy matter to say that Nilus is a Greek term for that river, but not so easy to account for the origin of what is no Greek word. Hecatæus tells of a town Neilos, and the Niloa, or festivals of the river, are mentioned by many writers. It was likewise known to the ancient Hindoos as the Cali. The ancient Neilos or Nilopolis, which was situated in the Fayoum, is no doubt the present Illahoun, about which traces of Nile worship are conspicuous. As *r* and *l* are interchangeable in Coptic, we may find the same name in the Phruron or Nilus of Eratosthenes, answering to the Nileus of Diodorus, who appropriately precedes Chembes. Similar pairs of words are Aeolus and Perieres, Aila and Paruravas, Khulasa and Gerar. Jehaleleel by this process would become Jehareeer or perhaps Haroeris. The *l* and *r* are interchangeable in the word Ahalu or Aahru, denoting the heaven of the Egyptians; and this word is simply the name of the son of Achuzam. I may premise so far as to give its equivalents in different languages for the sake of establishing the identity. It is the Palestinian Khulil, Khulasa or Elusa, the Greek Elysium and Eleusis of the mysteries, the Latin Cœlum, the Sanscrit Kailasa, the Germanic Valhalla and the Celtic Avilion. The funereal ritual of the Egyptians furnishes us with the original of the Eleusinian mysteries, Jehaleleel, as a prominent member of the sepulchral family, giving name to the region of which they chiefly treat. The valley of Ahalu, or Aaahru, or Balot—for it is known by these three names—is the region, first of all, whence Jehaleleel, who received the patriarch Abraham, having mustered his forces and made with him and other

neighbours treaties of peace, descended upon the valley of the Nile. As Balot he is Pluto and Philitis the shepherd, and Salatis. His town is Pelusium, whence he advanced to Salahieh, thence to Illahoun, and afterwards perhaps, although this is doubtful, to Silsilis. How he came to reside in Palestine when his father and uncles ruled in Egypt I leave for future consideration. His name is not unknown in classical story, for there he is Belus, King of Egypt, whose son Cepheus ruled in Ethiopia. The song of Linus, which so much excited the astonishment of Herodotus in Egypt, and which Sir Gardner Wilkinson has found in the "ya laylee! ya layl!" of the modern Copts, belongs undoubtedly to the memory of this ancient monarch. Already we have met with traces of Jehaleleel in Belus, Nilus, Salatis and Philitis, but no such name appears on the monuments. The reason no doubt is that the letter *l* has been persistently rendered by *r*, so that we must look for the invader under some such form as Aahru or Haroeris. In such a search it cannot be supposed that I should meet with any great measure of success, situated as I have been in a country unfurnished not only with original sources of information, but also to a great extent deficient as regards its libraries in works on Egyptology. I cannot doubt, however, that the Soris who precedes Suphis at the head of the fourth dynasty of Manetho corresponds to the Nileus who precedes the Chembes of Diodorus; Belus and Cepheus, Philitis and Cheops, Jehaleleel and Ziph answering to these. He is, I believe, the Ousrenre or Ranseser of the pyramid of Reega in the very region where Jehaleleel should be found, and whom Dr. Birch, to whom we owe the discovery of his name, will, I have little doubt, identify with the shepherd Hak. Osirkef, Aseskef, Ousrenre and Shufu are appropriately found together representing four generations of the line of Ashchur, the father of Tekoa. My authority for connecting Salatis and Ases or Jehaleleel and Achuzam as father and son has not yet appeared, but will be found satisfactory when I come to treat of the Persian and other traditions concerning this line.[34] If, as Mr. Osburn has stated, Salatis is the son of Othoes, the latter name must present an abbreviation of the Thoth form of Achuzam. Another name for Jehaleleel may be Thoules.[35]

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[34] The Persian Gilshah, who is also Ubul Muluk and Uboo Busheer, is the son of Yessun Ajam; the Arabian Ilyas is son of Yasin; the Greek Plutus is son of Jasion: and Yessun Ajam, Yasin and Jasion, are forms of Achuzam.

[35] It is not improbable that the legendary Egyptian name Melol or Meror given to the Pharaoh of the Exodus in the Book of Jasher is a reminiscence of Jehaleleel, corresponding with the Arabic Mahlayel, the father of Kabiyeh, Cepheus or Ziph.

A link by means of which the somewhat obscure traces of Jehaleleel are referred to him, is found in the name of his eldest son Ziph. Ziph is Typhœus and Typhon, as geographers have agreed in the case of the region of caves bearing the name in Palestine. As the name of an Egyptian Pharaoh it appears little changed in Suphis, while the character of the initial letter is seen in the fact that it may equally be rendered Khufu or Cheops. In Manetho's third dynasty, a Souphis follows Mesochris after Tyreis, being himself followed by Tosertasis, but, in Eratosthenes, Moscheris, a name like Mesochris, comes after Sensaophis, who is preceded by Saophis. These connect at once with Manetho's fourth dynasty, in which, after Soris, we meet with two kings in succession of the name of Suphis. There was one great Pharaoh of the name of Suphis or Cheops, to whom Herodotus and others attributed the erection of the great pyramid. The justice of the tradition has been shown in the discovery of the monarch's name by Colonel Vyse. He is Ziph, the son of Jehaleleel or Philition, Cepheus son of Belus, Chembes who follows Nileus. He belongs to the long-haired Shepherd line, and with them his memory was hated, he being, indeed, the personification of the race that opposed the family of Horus, and the Typhon of classical story. Accordingly Suphis is execrated while Mencheres or Manahath is blessed.[36] He fights the Anu, who descended from Onam or Onnos, another Horite, and stands in opposition to the family of Khem or Achumai, the founder of Coptos, with which in my last paper I improperly connected the Cheops of Herodotus.[37] Cheops and Chemmis are two very different persons. He also shows intimate relationship with the Ashchur line, in being mentioned together with Usecheres, as at Isbayda near Hermopolis.[38] Siouph or Seffeh, which appropriately lies in the Saitic name, is a geographical memorial of this monarch. The incense called Kuphi or Gef, which seems to have been partaken of by the dead on their arrival at Ahalu, connects this son of Jehaleleel with the funereal ritual that was first composed under his grandfather Achuzam or Assa Tatkera. The Kufa of Palestine, mentioned upon a tomb at Qoorneh, are probably the descendants of Ziph, after their expulsion from Egypt.[39] The title Sophi, which has been elaborately

[36] Osburn, i. 324.

[37] Lenormant and Chevalier, Manual of the Ancient History of the East. London, 1869. Vol. i. 205.

[38] Rawlinson's Herodotus, App. Bk. ii. ch. 8.

[39] Kenrick's Egypt, ii. 186.

treated of by the Rev. W. B. Galloway, must refer to the same distinguished person.[40]

We have seen that the next individual in the family of Jehaleel is a female named Ziphah. I do not think that she is the second Suphis or Sensaophis or Kneph Chufu. She is no doubt Nephthys (a word like Naptha already connected with Ziph in its form Zepheth), who is called the wife of Typhon and mother of Anubis. She was, in fact, the sister of Typhon and the mother of Anubis, who is Kneph, hence the title Kneph Chufu; but her husband was Coz, the son of Ammon, whose son Anub or Ganub furnishes the names Anubis, Kneph, Canobus,[41] &c. If the Kufa descended from Ziph, it can hardly be that he died childless; nevertheless he appears to have been succeeded by his sister's son. The consideration of the family of Coz, however, must be left for the present.

Two younger brothers of Ziph remain. These are Tiria and Asareel. Tiria may be Tyreis of Manetho's third dynasty, and Asareel the Mesochris who follows him, both of these being mentioned out of their true order. Yet on this point I am far from insisting. Certain it is that the former left his name to part of the mountain range connected altogether with the family of Ashchur, in its appellation of Troicus; the Troja of Egypt, with its kindred names of Illahoun and Assareel or Assaracus, with Ziph or Capys, giving us the originals of those which at a later period arose in the geography and traditions of Asia Minor.[42] Not that I believe the siege of Troy took place in Asia Minor, but, as I trust soon to be able to prove, in Palestine, and upon the eastern shore of the Dead Sea. This may appear startling and improbable, but so is the whole truth concerning the early history of Egypt and the world.[43] It is not to be denied that the Trojans assisted the Hittites in their wars with Rameses II.[44] To return, however, to the geography of Egypt, we find the limestone hills of Tourrah and Masarah, or of Tiria and Asareel, furnishing appropriately the materials for the erection of their brother Ziph's

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40 Egypt's Record, 545.

41 Canopus and the Dioscuri are associated (Guigniaut). Anubis holds a prominent place in the Egyptian mysteries.

42 In Jehaleel I find Ilus, the eponym of Ilium; Ziph, Tiria and Asareel are Capys, Tros and Assaracus. The Troja of Egypt was as much older than that of Asia Minor as the Thebes of the same country exceeds in antiquity the similarly named city of Bœotia.

43 As I differ from other investigators in regard to the locality of Troy, so am I compelled to differ in the date I assign to the Trojan war, which I think must have taken place during the wandering of Israel in the desert.

44 Lenormant and Chevalier, i. 249.

great pyramid and those of succeeding monarchs. It would swell this paper to an unnecessary degree were I to state the many conjectures which the history and geography of Egypt give rise to in connection with the names of the sons of Jehaleleel, or were I even to state the many arguments by which the identity of Ziph, Suphis and Typhon may be supported. I write for students of Egyptian history who have the facts before them, and to whom what I have briefly indicated will be amply sufficient to bring conviction of the truth.

Having traced the line of Achuzam as far as Anub, the son of Ziphah, we may return to investigate the relations of his brother Hepher with Egypt. Looking first at that part of the history which is termed mythological and accounted most uncertain, we may find some indications of his presence in the prophet Phrasius from Cyprus,[45] a supposition which I found more on the name of the place whence he came that on that which he bears, for Cyprus, I have little doubt, took its name from Chepher. He is certainly the god Kheper, one of the eight, and the head of the Cabiri, who are of Ptah Sokkari, his father. Pococke has correctly united the name Cabir with the geographical appellation Cyprus.[46] Cabar is an Egyptian name for Venus; Astarte is called Kabir; and the legends place the birthplace of the Venus of the Greeks, who must not be dissociated from them, in Cyprus.[47] We shall yet find the name of Astarte intimately connected with the family of Ashchur. Another mythical character relating to Egypt is Hyperion, whose city was Heliopolis or On.[48] He is Hepher and the Sephres who has already been before us, the latter name being the Egyptian equivalent of the Chaldean Sippara and Ḳirjath Sepher of Palestine, the city of the book. On, the city of this Sephres, Hepher or Hyperion, was appropriately the university of Egypt.[49] He has left many geographical monuments. Abaris of the Sethroitic nome is the unaspirated form of Hepher, and need not have given much trouble to the student of Josephus, for it is simply Chabrias, which Strabo places near Pelusium, a word presenting the aspirated form of the same name. All its surroundings are Ashchurite, such as Casium and Phacussa,

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[45] He is connected with the story of Busiris as the adviser of that monarch in the matter of human sacrifices.

[46] Pococke, India in Greece, 220, &c.

[47] Guigniaut, i. 833; Rawlinson's Herodotus, ii. 51, note.

[48] The whole story of Hyperion, Cycnus, Phæthon, &c., is Egyptian, and belongs to the line of Hepher.

[49] Rawlinson's Herodotus, ii. 3, note.

Pelusium and Salahieh, Sethrum, &c. There are other towns of the same name in the land of the Pharaohs. Diodorus makes Chabruis the son and successor of his Chemmis and the same person as Cephren, called his brother. Herodotus mentions Cephren also as the successor of Cheops. Now Cheops or Suphis had no brother of this name, and his nephew who succeeded him was Kneph Suphis or Anub, son of Ziphah. Manetho nowhere makes mention of a Chabrias or Cephren immediately after Suphis, but records several names which relate to the person so called. In the third dynasty there is a Sephouris, who rightly comes next to Aches or Achuzam, but is wrongly placed with him after a Suphis, Tosertasis only intervening. Sephres, who I think is the same monarch, is the second of the fifth dynasty, Usercheres being the first. It is worthy of note that Sephouris is said to have reigned thirty years and Sephres thirteen.[50] Not till the eighteenth dynasty do we meet with a similar name; and then, in the second and twelfth places according to Africanus, we find Chebros and Chebres with a reign of thirteen and twelve years respectively. He is, I am persuaded, the same person as Sephres or Sephuris and the eponym of Chabrias and Avaris. Sephuris has been found at Gizeh, the region of Achuzam. At Karnak he appears on the same line with Aches. Like others of his race, he fights the Anu, or people of Onam the Horite. He has a tablet in the Sinaitic peninsula, where, I doubt not, he gave his name to *copper* in many languages, as he did to the *cypress* among trees. Sephres, again, has been rightly placed third after Menes by Lepsius, Achuzam being the second, under his name of Athothes. He has been seen to connect with the family or line of Usecheres or Ashchur, and to him is imputed the Sphinx, which immortalized his elder brother. His identity with Hyperion and relations with the places called Sippara and Kirjath Sepher are also fully established by the frequent mention made of the "Library of Sephres."[51] Mr. Galloway, quoting Abydenus and other writers after Berosus, conclusively proves that Sippara and Heliopolis, the town of Hyperion or Hepher, are the same.[52] The relations that subsisted between this place and Xisuthrus or Sesostris or Achashtari will yet make the fact irrefutable. I have connected Sephres and Chebros, although the latter occurs in the

[50] The "thirty years" allotted to Sephouris is I think a mistake, thirteen being the true number.

[51] Osburn, i. 310.

[52] Egypt's Record, 159.

eighteenth dynasty, which is inimical to the Shepherds. It is certainly one of the last places in which, had I been forming mere hypotheses, I should have been disposed to look for a son of Ashchur. He is mentioned here as one of the ancestors of the line that took part in the expulsion of the Hyksos proper, and not as one who actually participated in that expulsion. The similarity in name and length of reign are points in favour of the connection, but it is by means of his descendants that we are enabled to decide that the Sephres of the fifth and the Chebres of the eighteenth dynasty are the same individual.

I have already stated my present belief that the Kenaz of 1 Chron. iv. 13 was the son of Hepher, Sephres or Chebros. The name of Kenaz connects with three lines, although I need not say that it only refers to one. It is the Pachnan or Pachnas of the Shepherds, the Bakkan of the Stranger Kings, and the Akencheres of the eighteenth dynasty.[53] Sir Gardner Wilkinson and other eminent Egyptologists have already suggested the correspondence of these names.[54] Mr. Perring has referred the Stranger Kings to the Hyksos line, and Lepsius connects them with the eighteenth dynasty. The father of Akencheres is Chebros, and the father of Bakkan is the same, although the title of Amenophis is generally prefixed. As for Pachnan, he merely follows Bnon, an unknown king. With the line of Stranger Kings who worshipped the sun's disc we find the female name Taia connected, a name which at once calls to mind the wife of Hyperion, who was Thea. The character which Diodorus gives this monarch as a great astronomer agrees with the scientific pursuits of Sephres. If, however, Pachnan and the other names mentioned give us Kenaz, we should find his descendants. His eldest son was Othniel. Now, the final *el* we must not expect.[55] Atni, Gothon or some such form must represent him.[56] Accordingly he is the Atin-re or Toonh, who is intimately associated with Bakkan at Psinaula, which is simply Othniel with the prefix of the Coptic article and the change of *t* to *s*. He is also the Danaus, a Greek form like Donald,

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[53] We also find Kenaz with the *ra* affix in the Cheneres or Kai-en-ra who, with a reign of thirty years, closes the second dynasty following Sesochris, who is Sesostris, or his uncle Achashtari.

[54] Rawlinson's Herodotus, App. Bk. ii. ch. 8.

[55] This final syllable is peculiarly Hebrew, and rarely occurs in names transported beyond the Semitic area. Thus Shobal appears as Seb, Siva, Sabus.

[56] Atin would represent the unaspirated and Gothon the aspirated form of the name, the Septuagint rendering of Othniel being Godoniel.

Daniel, and similar words derived from Othniel, who fittingly follows Akencheres. Again he appears among the Shepherds in a truncated form of the Greek Sthenelus (Sthenis), as Staan after Pachnan. He is likewise the Phæthon whose claims were disputed by Epaphus (Apophis), the friend of Cycnus (Kenaz), and, as I have already indicated, the Adonis of Phœnicia and Cyprus, where the Cinyrads kept up his father's memory. Hathath, who is of Othniel, may be a daughter, which the feminine termination would justify, and the Athotis, Teti or Tati of this line who married Skhai, whoever he may be, and became the ancestress of the Ramessid dynasty. Meonothai, who follows and may be her son, is, I think, Menephthah; and Ophrah probably gives Miphres or Misaphris, from whom came the great enemy of the Hyksos. Seraiah, the second son of Kenaz, may be an Egyptian Soris, Sisires, Sirois, or Sirius. As the dog-star he unites his father's name (Canis) with his own. The student of the lists and monuments has now his materials before him in almost, if not perfectly, infallible order, and may supplement these initial labours without much trouble. I may mention before passing from the family of Hepher that his wife Taia was probably a daughter of Onam, her father being given as Ainnin, and he himself connecting intimately with On, the city of this Horite king. From their mother also Bakkan or Kenaz and Atin or Othniel may have adopted the Horite *ra* into the nomenclature of the family. The connection with Onam may also explain the union of his mother's name Atarah with the Joab who appears as a son of Seraiah, and great-grandson of Hepher, in Ataroth Beth Joab. The name of Kenaz remains in Conosso, the Wady Beni Kensi, Pachnamuis, and other places, in the neighbourhood of which the memory of his descendants is similarly embalmed.

I have not much to say about the third son of Ashchur, Temeni. We have already found him associated with Sheth and Sahor as a god of Hermopolis, and the geographical name Damanhour in the Delta, not far from Naucratis, which commemorated his mother, preserves his memory. He may be found with the article as some early Phthamen, and is, perhaps, the so-called Mencheres, Timan-hor without the initial and important T, who immediately follows Sephres, and whose standard is of the same character as those of Usecheres, Aches, Sephres and Sesostris. The true Mencheres or Monthra is the son of Shobal, and this Mencheres cannot be the same

man. Sephres had no Mencheres among his sons, nor had Aches.[57] Temeni may be Tancheres of the fifth dynasty or the Stamenemes of Syncellus. I know nothing certainly about him; but from the fact of his being a god and giving name to a town, it is probable that he exercised sovereignty, and may yet be found occupying no mean position among the Pharoahs. It does not, however, follow because the name of an Ashchurite appears on the monuments and in the lists of Manetho and others, or as the designation of a town, that he therefore exercised sovereignty in Egypt or even lived there. Sons and brothers would naturally preserve the memory of their nearest relatives and hand them down to posterity along with their own, although these might dwell in distant regions. Temeni may never have been out of Palestine, or may have returned there, not temporarily, as Jehaleleel, but for permanent residence. Elon, the father of Esau's wives Bashemath and Adah, Husham who ruled in Edom, and Eliphaz the friend of Job, were doubtless of his family, and the first of these was probably a grandson; so that some of his descendants early made Palestine their home.

The fourth of Ashchur's sons by Naarah is Achashtari. He was the greatest of the Shepherd line. His name occurs with and without the final *ri*. As the god of the Hyksos he is Sheth or Ashtar, the latter name giving us the Ahashtari of Chronicles. Astarte is the goddess joined with him, the eponym of Ashtaroth Karnaim. He named Sethrum and the Sethroitic nome, with other places in Egypt, all in the vicinity of Ashchurite designations. He is the Satis of Bar Hebræus, the Sethos and Saites of other chroniclers. As Sheth, he divided the opprobrium of the new race with Smu or Achuzam, Babys or Apophis, and Typhon or Ziph. The legend of the patriarch Seth being buried in an Egyptian pyramid belongs to him. Josephus made a similar mistake, and ascribed to the son of Adam the erection of inscribed pillars in the land of Siriad, which Whiston referred properly to Sesostris.[58] With all the legends relating to Seth, the story of a flood is bound up; and Mr. Galloway, arguing for an Assyrian connection, has proved conclusively that Sesostris, Xisuthrus and this Seth are one, the flood being an element in the history of each. All of these names are at once derivable

[57] Meonothai of the family of Hepher may easily be a Mencheres, however, although he would come much later.

[58] The Siriadic land is that of the Siris, Shihor or Nile, named after Ashchur, the father of Sesostris.

from that of Achashtari. The deluge may have been an extraordinary overflow of the waters of the Nile, or, almost as probably, the same convulsion of nature as that which submerged the Cities of the Plain, near which the Shethites dwelt.[59] The story told by Diodorus of the destruction of the army of Sesostris at Pelusium, owing to the universal drunkenness of his soldiers, we shall yet meet with in the annals of countries far from the shores of the Mediterranean.[60] Sesochris of Manetho's second dynasty and Sesostris of the twelfth are plainly the same person. In the second dynasty he bears the name of his father (Ashchur) instead of his own. The monuments give him to us as Nesteres (if the initial *n* be a true reading), son of Usecheres, who took Heliopolis from Onnos, and thus no doubt incurred the enmity of his elder brother Hepher. As Nesteres, he appropriately connects not only with Usecheres but also with Aches and Sephres or Sephuris. From a similar form of his name the Shepherd dynasty, succeeding to the Auritæ, acquired the designation Mestræi. Phlegyas at On we learn was called Mestres.[61] The name Phlegyas itself survived in Pilku, one of Sheth's cities, in Boulak near Cairo, and in Belka in the land of Moab. It is hard to say who, among the many Sesortasens of the twelfth dynasty, represents the third son of Ashchur. As far as I can judge, the name Sesor-tasen is not confined to the family of Achashtari, but is applied to other children and descendants of the father of Tekoa. Sir Gardner Wilkinson, however, decides that Sesortasen I. is Sesostris, while Lepsius favours Sesortasen II., and many, from the fact that the third Tothmes treated him with divine honours, find the great conqueror in Sesortasen III. Onnos is represented as the father of the first of the Osirtasens or Sesortasens.[62] It is possible that Achashtari may have married a daughter of the Onnos or Oannes whom, as Sesostris or Xisuthrus, he expelled from On, but more probable that confusion has taken place of his name with that of his brother Hepher, who certainly did so, and who, as a son of Ashchur, had equal right to the name Osir-tasen. To Sesonchosis, who is made by Manetho the first of the Sesortasens, Dicæarchus ascribes the use of the horse and the institution of castes. We have already found the name of Achuzam associated

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[59] The period of Sesostris would agree with this since we find his nephew Jehaleleel ruling in Gerar or Elusa immediately after the destruction of the Cities of the Plain.

[60] Among other notices of the same kind, we have the Welsh tradition of Seithenin, the drunkard.

[61] Guigniaut, iii. 520.

[62] Gliddon's Ancient Egypt, Philadelphia, 52.

with horsemanship. It is Achashtari, however, as Castor of the Dioscuri, whose name is most prominent as an early rider, and it is the same monarch who, as head of the Kshetriyas, formed the warrior and other castes of Egypt. His brother Chepher named copper among metals and the cypress among trees. His elder brother Achuzam and his son Jehaleleel, as we have seen, left their names to certain species of the acacia. Achashtari also, in the Sheth form of his name, gave the oriental equivalent Shittah to the same tree, but in the fuller form designated the metal *tin*, which is the Greek *Kassiteros*, Sans. *Kastira*, Arab. *Kasdir*, all coming, no doubt, from the Phœnician or rather Philistine name of this monarch. The Sesortasens are preceded on the tablet of Abydos by Ammoneith, whose name is very like Manahath. It is possible, therefore, that Manahath and Achashtari had relations with one another, the latter being son-in-law of the former. I have as yet no evidence for this, nor for another probable connection, that of Ammon as the son-in-law of Achashtari or Sesostris. Neither have I so far been able to find certainly the children of Achashtari, who gave name to the Shethites. Moab probably united with his family, and Bela or Belag, the son of Beor or Phegor (whence Baal Peor), who ruled at Dinhaba in the land of Moab over that country and Edom, may be a descendant of Sesostris, from whom came the name Pilku, Phylace, Boulak, or Belka.[63] Beor or Phegor may be the Bicheris of Manetho's fourth dynasty, who follows the Suphids, but also the Biyris of Syncellus, who precedes Saophis. If Beor be the son of Achashtari, he must be earlier than Ziph, the grandson of Achuzam, but, as reigning in a different part of the land of Egypt, might easily be mentioned after him. Shuckford supposes that the invasion of Salatis drove Belus out of Egypt, and this Belus is fabled to have ruled in Phœnicia and Babylon. I cannot but think that the Bocchoris, whom Manetho, Diodorus and others place at a much later period in Egyptian history, may be the Beor or Begor whose son fled to Moab and ruled at Dinhaba. He may also be found in the Labares, answering to the Alapar and Bellepares of Babylon, who immediately follows Sesostris in the twelfth dynasty of Manetho. The plain of Bacarah opposite lake Moeris, on the east of the Nile, both by its name and position favours this identification. The memory of Beor or Phegor is also, I believe, preserved in the present Vacaria on the

[63] Genesis xxxvi. 32.

borders of the Arabian desert, which marks the ancient Phagriopolis and the Phagroriopolite nome. The fish Phagres, (the eel), which was worshipped as Phagriopolis, was fabled to have devoured the member of Osiris which was missing when Isis went in search of his discerped body, in honour of which that phallus worship arose which is always associated with the idolatry of Baal Peor. Sheth certainly dwelt in the Rabbahs of Ammon and in Ar-Moab, so that the connection is far from being an improbable one. The Phre, who is a god of the Shethites with Ashtar and Amun, cannot be a form of the Horite Ra, and is, I am inclined to think, this Beor. He will also be the Pheron, whom Herodotus makes the son of Sesostris, in connection with whom it is well to observe that the same author attributes to him the erection of phallic pillars. I reserve what I have to say concerning the Shethites or descendants of Achashtari for the Palestinian connections of the Egyptian Ashchurites.

We now turn to the family of Helah, of whose name I have discovered as yet no trace. The first of her sons, and probably the contemporary of Achuzam, was Zereth. The first letter of his name is one of the most uncertain in the Hebrew alphabet in regard to the forms which it may assume. S, K or Ch, T or Ts, are the equivalents which we may expect to meet with. Among the Shepherds of Syncellus, Certos following Sethos must be this Zereth; and the Tricus of Bar Hebræus coming after Susunus, whom I have taken from his position to be Achuzam, is probably the same. Evidence, which I think puts this out of doubt, is furnished by the lists of Upper and Lower Egyptian kings which Syncellus has preserved. The successor of Menes in the one list he makes Athothes, who is Achuzam, and in the other Curudes, who is Zereth. He is also, I have little doubt, the Tosorthrus or Sesorthus of Manetho's third dynasty, whose name may be repeated there as the Tosertaris who immediately precedes Aches. A name similar to either of them has been found at Memphis with that of Aches.[64] As Helah is first mentioned in the Hebrew text of Chronicles, Zereth may possibly have been the eldest son of Ashchur. The name of this monarch is only known to me subsequently in that of his descendants, the Shairetaan, who are plainly the people of Zarthan and similarly named places in Palestine. They are, as I have already indicated, the Cherethites or Cretans, an identification for which I have the high

[64] Kenrick, ii. 109.

authority of Mr. Poole. These Shairetaan, or people of Khairetana, were essentially maritime, and the Bible coast of the Cherethim was that extending eastward from Pelusium, known to the Egyptians as Zerethra or Barathra. Branches of this family afterwards migrated to Zereth Shahar, Zarthan, the neighbourhood of the brook Cherith, and other places on the Jordan, so that the Egyptian records correctly represent them as at times a sea, at times a river population. The so-called Sardinians and Dardanians and Cretans of the monuments are different readings of the name by which the descendants of Zereth were known.

If any doubt existed as to the connection last stated, it is set at rest by that of Zohar or Zochar, the brother of Zereth, who stands next in order. I do not know whether his name appears on the monuments as a ruler in Egypt. From the fact of his son Ephron being at Hebron in the time of Abraham, it is hardly likely that he himself governed in the land of the Pharaohs. He may, however, be the Tocgar Amachus of Syncellus, while Moscheris and Mesochris, already queried for a son of Jehaleleel, answer to his name, with the, as we have seen not uncommon, prefix of M. More probable, however, is it that he is the Seker-nefer-ke or Necherochis of the same third dynasty to which Tosorthrus belongs. It is in the mention of his descendants that we justify his own Ashchurite and Shepherd relations. These are the well known Tocchari, whom Nott and Gliddon have termed "pure Celts." The Tocchari are nearly always united with the Shairetaan or descendants of Zohar's brother Zereth, as well as with the Taochi, or men of the line of Ashchur of Tekoa. Their name has been correctly rendered Teucri, for from the two sons of Helah came the lines imputed to Dardanus and Teucer. It need not now surprise us to find that other nations, supposed to have come from Asia Minor and still more distant regions to make war with the Pharaohs, dwelt within a short distance of the northern bounds of their dominion.

Ethnan and his descendants I have not yet satisfactorily identified. The latter may be the Tohen or Tahennu whom the Egyptians hated and with whom they maintained frequent wars, and the former may, although I doubt it, be the Tancheres of Manetho's fifth dynasty. Many places bearing a name similar to that of Ethnan about the Tanitic branch and mouth of the Nile, with Tineh as a name of Pelusium, may commemorate this last son of Ashchur. Other

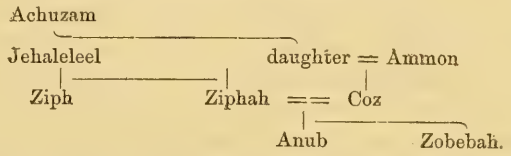
investigators with more time and greater appliances at their disposal will, I trust, soon afford us information regarding Ethnan and his family.

There are many names of Egyptian monarchs remaining, and some of them we must yet consider. Others, which belong to the families of Jerahmeel and Onam—such as Cheres of Manetho's fifth dynasty, who, I think, is Eker (1 Chron. ii. 27); Tlas of the second, who is Jediael (1 Chron. vii. 6, 10); and Amchura found at Abousir, who is Abishur, grandson of Onam or Onnos (1 Chron. ii. 28, 29); together with Harphre or Cerpheres of Manetho's third, who is Hareph, the father of Beth Gader (1 Chron. ii. 51)—I must keep for a future paper on their respective lines, none of which, except that of Hareph, has intimate relations with the Ashchurites. The family of Ezra (1 Chron. iv. 17, &c.), to which I have alluded, I must also for the present pass by, merely stating that the well known prince Mourhet is the Mered who is there said to have married a daughter of Pharaoh, and that Jered is the Rathures or Jered-ra of Manetho's fifth dynasty, the Sakha or Succoth of Egypt being derived from the Socho of which his brother Heber was lord, he being also the Egyptian Heber-Scot of the Irish and Scotch traditions, and an ancestor of the Scyths. As for the line of Chelub, the brother of Shuah (1 Chron. iv. 11), all that I can say is that it has intimate connections with the Shepherd stock, Chelub being the Chalbes who was the herald of Busiris according to the so-called myth already quoted, Mechir giving his name to an Egyptian month, the Beth Rapha of verse 12 furnishing the house of Raphahes so often spoken of under the Sesortasens, and the other names occurring in connection with them upon the monuments. Nevopth, who appears as a high functionary under Sesortasen II., is the ancestor of the Netophathites (1 Chron. ii. 54), and the name of his son Nahrai long survived in the family, as we find by the mention of Maharai the Netophathite (2 Samuel xxiii. 28). Let it not be supposed that these are mere verbal connections. I have evidence for them all, almost if not quite as strong as that which I believe I have conclusively shewn for the connection of the sons of Ashchur. I believe also that the Rebo, a tribe inimical to the later Pharaohs, are the Anakim of Arba, who ruled in Hebron or Kirjath Arba. This gathers probability from the fact that they were allied with the Tocchari who took their name from Zohar the father of Ephron, who dwelt in the same place in the time of Abraham. The children of Coz and Mareshah, the father of Hebron,

are the only other persons mentioned in the Book of Chronicles whom it is necessary at present to connect with the Shepherd line of Egypt.

I have already stated that Coz is the son of Ammon, the son of Lot. The identity of Amun and Ammon has been suggested by various writers, and Sir Gardner Wilkinson decides that these names are too near in every respect for their similarity to be accidental. The child of Amun in the Egyptian Pantheon is Chons; Amun, Maut and he forming the great Theban triad. This Chons or Coz is the Egyptian or Arabian Bacchus, not the Nimrod or Bar-Cush of Bochart, but the same who named the month Pachons by prefixing the article to his name, who is also a son of Ammon. Œnopion, son of this Bacchus, prince of the Island of Cos, is Anubis of the line of Amun and the Anub of Chronicles. The Hebrew meaning of the latter word is "grapes," a most appropriate name for the son of the wine god. As a monarch, Anub appears in the first of Manetho's dynasties under the form "Ouenephes." He is called the son of Kenkenes, which is simply Chons reduplicated, the true character of the name appearing in the Cochome (from the word Kos, embalm) in which Ouenephes built pyramids. The Usaphais, who follows him, is no son of Anub but his sister Zobebah, whose name resembles somewhat that of her mother Ziphah, the sister of Suphis. Coz seems to have been the successor of Achuzam, who is Athothis and Boethus or Bochus, for we have already found him in the Kenkenes who came after the former, and now he appears still more plainly as the Choos or Kaiechos who follows the latter in the second dynasty. The successor of Choos is Binothris, "in whose reign it was decided that women should have the prerogative of royalty." This Binothris or Benteresh is a female name, and is given by Eusebius in a totally different form as Biophis, which is identical with the Usaphais of the first dynasty and the Zobebah of Chronicles. Anub appears again in the Kneph Chufu of the fourth dynasty, after his uncle Chufu or Ziph. The Methosuphis of the sixth dynasty followed by Apappus is, I think, a corruption of Zobebah, the word Phiops reproducing the Biophis of the second dynasty. The Amenemes of the twelfth dynasty may take their name from Ammon, although the form Ammoneith led me to question a connection of the lines of Manahath and Achashtari. Amenemes IV. will be Ammon-anubis or Anub the grandson of Ammon, and the female who succeeds him under the name of Scemiophris or Sebeknofre is really Zobebah, the only queen who ruled in Egypt during the period of ancient monarchy. The

relation of Suphis and the son of Coz is justified by the statement that Anubis was lord of Sepa or Siouph, the region named after the former monarch, into whose family Anub seems to have been adopted. The name Anon or Bnon, which follows that of Salatis in the list of Shepherd Kings, has been read Anoob in the papyrus of Turin, Suphis, who forms the connecting link, being omitted and Anub being made the immediate successor of his maternal grandfather. It is important to find Anub thus identified with the Shepherds. The region inhabited by him was probably that situated in the west of the Delta, where the town of Canopus and the Canopic mouth of the Nile preserved his name. The intimate connection of Coz and Anub as Chons and Kneph with Ammon establish their descent from him as son and grandson; the many agreements between the names Suphis and Kneph and their equivalents leave us in no doubt as to the fact that Coz married a sister of the former, who became the mother of Anub; but I have not yet found the relations mutually sustained by Achuzam and Coz. Their names are not unlike, and, as we shall yet see, they were often confounded.[65] If they were indeed related before the time of the marriage of Coz to Ziphah or Nephthys, it may have been by the union of Ammon to a daughter of Achuzam and sister of Jehaleleel.



Zobebah was, I think, the mother of Jabez, who is mentioned in the verse of 1 Chron. iv. immediately following that in which her name occurs. A play upon words appears in these verses, three forms presented in the Hebrew looking like anagrams—Zobebah, Jabez, Beozeb. The language of the text puts it beyond all doubt that Jabez was no Hebrew. He was a convert to the religion of Israel, and apparently a distinguished ruler whose life was marked by uncommon prosperity. He is the Apis, Phiops, Apophis, under whom Joseph governed, who feared God, and reigned nearly one hundred years. He was the greatest of all the Shepherds. Monumental and traditional evidence tell the same story concerning this monarch, who came so early to the throne. Who his father was I

[65] An example of this confusion is found in Ovid's Metamorphoses IV. 15, &c., where Bacchus is called Eleleus and Lyæus, which are forms of Jehaleleel, the son of Achuzam.

cannot definitely say, but it is evident that he died before the birth of the young Jabez,—Mœris, who acted as regent, not standing in this relation to his royal ward. As far as I can at present discover, Tlas or Jediael occupied the position of father or stepfather to young Jabez. I have already indicated that the place named after him in 1 Chron. ii. 55 is really Thebes or Tei Jabez, the chief god of which was his maternal ancestor Ammon, and which acquired the Bible name of No-Ammon. Monuments relating to monarchs of the twelfth dynasty have been found at Thebes. It very probably existed before, but the name of Jabez must have superseded any former designation at the time of the conquest of the region in which it was situated by Phiops. Medinet Abou, the modern name of part of this ancient city, commemorates Jabez. He is Apis the bull, and the god of the Nile who superseded Jehaleleel, as he had superseded his grandfather Ashchur, in giving a name to the river. Abydos may not improbably have been a lengthened or full form of this monarch's name as Jabets, a supposition which the fact of a god Besa having been worshipped there tends to rescue from the class of mere conjectures. The striking statements of the Book of Chronicles regarding one who appears in a line of Egyptian Pharaohs can apply to no other than the young king to whom Joseph was as a father, (Genesis xlv. 8), and who, doubtless by virtue of the instructions of that son of Israel, became the worshipper of the true God, thus incurring the inveterate hatred of subsequent dynasties of idolaters, to whose minds he appeared the symbol of all that was evil and impious. The scribes of Thebes were famous even in the time of Herodotus, and seem to have been so for ages. Will some learned interpreter of the Theban records restore the names and deeds of the Tirathites, Shimeathites and Suchathites, who came of the Kenite Hemath, the father of the house of Rechab (1 Chron. ii. 55), to a place among the historical characters of antiquity?

Among the Shepherds we find, in one list preceding, in another following Apophis or Jabez, the noteworthy name Archles. He is a veritable Hercules, and is indeed the man whose name has been applied to many heroes of antiquity. In him we have no difficulty in seeing the Acharchel, son of Harum, whose families (1 Chron. iv. 8,) are said to belong to the line of Coz. His father must furnish the name Hermes to Greece, and in Egypt is, I think, Armais, the head of the Hermotybians, and, perhaps, the founder of Hermonthis or Erment. As Armais, he appears in the eighteenth dynasty, which

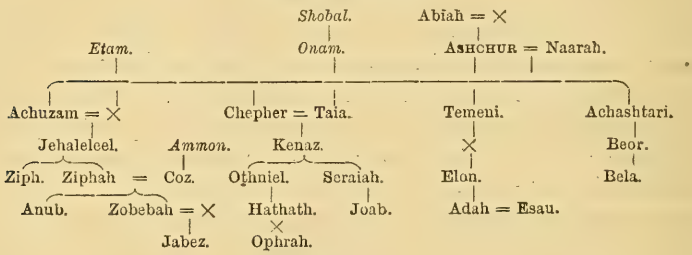
need not be matter of astonishment, inasmuch as Chebros, who is Hepher, almost immediately precedes him. He is not, as is there alleged, Danaus, who may, with more probability, be Othniel, grandson of Hepher, the Atin-re or Toonh of the monuments. His connection with the family of Hepher in the eighteenth dynasty is justified by the position of his son Acharchel in the list of the Shepherds. In Manetho's fifteenth dynasty the latter is mentioned after Pachnan, who is Kenaz, and Staan, who is Othniel, being the immediate successor of the last of them and the predecessor of Aphobis. The Acherres, who goes before Armais in the eighteenth dynasty, is also, perhaps, Acharchel his son. I do not know who the father of this Armais was, nor in what manner he came to connect himself with the family of Coz. It would seem as if either Harum or Aharhel had married a daughter of the father of Anub. If Acherres, the predecessor of Armais, be not his son Acharchel, he may be Eker, the son of Ram, who certainly did exercise sovereignty in Egypt, being the Cecrops (Ekerophes) of Sais mentioned in many histories. The analogies of the names Ram and Harum are in favour of this view. Eker, however, belongs to the stock of Jerahmeel, and for the present must be set aside. I may add, however, that Cheres of the second dynasty follows Sethenes or Othniel, and thus helps the connection of the line of Harum with that of Hepher, whether it be through the Jerahmeelite Eker or not. Many places in the western part of the Delta, where we have found memorials of Anub, bear the names of Aharhel, Harum, and Acherres, as well as other parts of Lower Egypt.

The only remaining person, among those of whom I have deemed it necessary to treat in this paper, is Mareshah, the son of Laadah and father of Hebron. He is Moeris, the guardian of the youthful Jabez or Apophis. He has been called a prince of Arvad or Ruad. Here the *r* is wrongly taken instead of *l*, for Ruad is really Laadah the name of his father. I confess that I have not much more evidence, at least on Egyptian soil, for the connection of this Midianite with the youthful Jabez and his mother Zobebah, the Cybebe of classical story, Moeris or Mareshah being Marsyas. The names of Mareshah and Zobebah are found together in southern Palestine, the latter in its modern form of Kubeibah; and the Arish which forms the boundary of that land towards Egypt is but an earlier Marsyas without the prefixed M. The name of his son Chebron has been found on the monuments of his period, himself being the Maire Papi

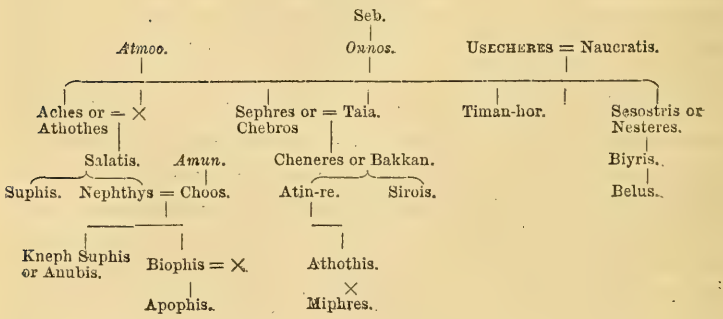
of the so-called sixth dynasty and Amenemhe III. of the twelfth. Eileithyias may commemorate Laadah or Eldaah. The Shepherd Rekamai, whose shield has been found at Lycopolis, is doubtless Rekem, the grandson of Mareshah. Between lake Moeris and Eileithyias several geographical names are found, which may probably preserve those of Hebron and his descendants. I have also identified provisionally the names of other Midianites with Egyptian localities. The people of this family were expelled to Palestine together with their allies of Moab, Ammon and Sheth, when the power of the Shepherds was broken. The story of that expulsion, as it may be read in the connection of Scripture proper names with the records of antiquity, I hope soon to be able to relate. In the meanwhile I have fulfilled the task which I set out to accomplish, having given the families and relationships of all the more important Pharaohs of the Mestræan or Shepherd line, which dispossessed the Horite stock of Shobal or Seb of Egyptian sovereignty.[66] With the utmost confidence I place

[66] The following is a list of the Bible names which I have identified with Egyptian monarchs, together with their historic equivalents.

I.—BIBLE NAMES.



II.—EGYPTIANS.



these identifications in the hands of the scholars to whose valuable labours I am indebted for the materials out of which I have been enabled to build up a consistent and harmonious scheme of early Egyptian history. Without the results of their patient and arduous investigations I could not have hoped to succeed; and I shall now be well content to repay the debt I owe them by leaving to their more richly stored memories and facile pens the work of rendering generally available the truths which it has been my aim in this paper to set forth.

III.—NATIONS.

Ashchurites.

Hyksos. Hepherites or Disc worshippers. Temanites. Shethites. Shairetaan. Tocchari. Tahennu.

IV.—CONTEMPORARIES.

Ashchurites in large capitals; Horites in small; Etamites in ordinary text; Ammonites in italics; lines of Armais or Harum and of Mareshah in parenthesis.

I. SEB.
II. RA, MONTH OR MENES, ONNOS, USECHERES, Atmoo.
III. ACHTHOES, ACHES, SEPHRES, TIMANHOR, NESTERES, CURUDES, Osiris.
IV. KAMES, SALATIS, BAKKAN, BIYRIS, *Amun.*
V. SUPHIS, NEPHTHYS, ATIN-RE, SIROIS, *Choos or Khons,* (Armais) BELA.
VI. *Anubis, Biophis,* ATHOTHIS, (Moeris) (Archles).
VII. *Apophis,* MENTERRA? MIPHRES?

The Bible equivalents of these names are:

I. Shobal.
II. Reaiah, Manahath, Onam, Ashchur, Etam.
III. Jachath, Achuzam, Hepher, Temeni, Achashtari, Zereth, Jezreel.
IV. Achumai, Jehaleleel, Kenaz, Begor, Ammon.
V. Ziph, Ziphah, Othniel, Seraiah, Coz, Harum, Bela.
VI. Anub, Zobebah, Hathath, Mareshah, Acharchel.
VII. Jabez, Meonothai, Ophrah.

The line of Etam or Atmoo may be a generation earlier than that in which it is here placed. It seems that Jezreel or Osiris lived in the time of Usecheres and Month or Antæus, so that Atmoo would be a contemporary of Seb. The order of dynasties would thus be:

I. Osirian in Jezreel the son of Etam.
II. Horite in Manahath, the son of Shobal.
III. Shepherd in the sons of Ashchur.
IV. Ammonian in Coz, the son of Ammon.

Geographical equivalents of these names are:

I. Seb.
II. Hero, Mendes, On, Sakkarah, Pithom.
III. Ati, {Casium, Gizeh, } Avaris, Chabrias, Damanhour, Sethrum, Zerethra, ———.
IV. Chemmis, Silsilis, Pachnamuis, Phagriopolis, Hammonis.
V. Siouph, Tsebets, Psinaula, ———, Cochome, Hermonthis?, Pilku.
VI. Canopus, Bubastis, Seshesh?, Moeris, ———.
VII. Thebes ———, ———.

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

(Continued from page 72.)

After leaving Gwillimbury you enter Holland River and pass into Lake Simcoe, by the head of Cook's Bay, to the westward of which are oak plains, where the Indians cultivate corn; and on the east is a tract of good land. A few small islands show themselves as the lake opens, of which Darling's Island, in the eastern part, is the most considerable. (Darling's Island is now Snake Island.—Ed.) To the westward is a large deep bay, called Kempenfelt's Bay, from the head of which is a short carrying-place to the River Nottawasaga, which empties itself into the Iroquois Bay in Lake Huron. (Iroquois Bay is now Nottawasaga Bay. The Otchibways call the Iroquois Nottawas.—Ed.)

In the north end of the lake, near the narrows, leading to a small lake, is Francis Island, between which and the north shore vessels may lie in safety.

From the bay west of Francis Island there is a good path and a short portage into a small lake. This is the nearest way to Lake Huron; the river, which falls from Lake Simcoe into Matchedash Bay, called the Matchedash River, making a more circuitous passage to the northward and westward. (Matchedash River is now the Severn.—Ed.)

Black River joins the waters of Lake Simcoe nearly where they fall into Matchedash channel. The source of this river is near the head of the river Rideau.

The River Matchedash, falling into a bay of that name to the eastward, which receives North and South River, discharges itself into a larger basin, called Gloucester or Sturgeon Bay, in the chops of which lies Prince William Henry's Island, open to Lake Huron. On a

peninsula in this basin some French ruins are still extant; and between two larger promontories is the harbour of Penetanguishene, around which there is good land for settlement. (The ruins are remains of the Jesuit mission house, or fort, St. Mary. See Parkman's *Jesuits in North America*, p. 362.—Ed.)

To the west of the largest promontory is Nottawasaga Bay (or outlet of the Iroquois), open to Lake Huron; throughout the greatest part of Matchedash Bay there is a depth of water for vessels of any draught, excepting towards the bottom of the bay. Penetanguishene has been discovered to be a very excellent harbour.

On the east side of Yonge street, in the rear of the townships of York and Scarborough, is the township of Markham, settled principally by Germans; in this tract are some good mills, built on a branch of the River Nen.

In passing out of the harbour of York, to the westward, you see the garrison on the mainland at the entrance of the harbour, which, and the block-houses on Gibraltar point, are its security; and a little to the westward are the remains of the old French Fort Toronto (called Fort Rouillè in 1752.—Ed.); adjoining to which is a deep bay, that receives the River Humber, on which are sawmills belonging to Government; a little way up the river the Government yacht is building. Further to the westward (that is, between the Humber and the head of Lake Ontario) the Etobicoke, the Credit, and two other rivers (the Sixteen and Twelve Mile Creeks.—Ed.), with a great many smaller streams, join the main waters of the lake; they all abound in fish, particularly in salmon. The Credit is the most noted; here is a small house of entertainment for passengers. The track between the Etobicoke and the head of the lake is frequented only by wandering tribes of Missisagas.* At the

* The following is a copy of the agreement on the part of the Missisagua Indians to surrender the tract here referred to: "We, the principal Chiefs of the Missisagua nation, for ourselves and on behalf of our nation, do hereby consent and agree with William Claus, Esq., Deputy Superintendent-General and Deputy Inspector-General of Indian affairs, on behalf of His Majesty King George the Third, that, for the consideration of One Thousand Pounds Province Currency in Goods at the Montreal price to be delivered to us, we will execute a regular Deed for the conveyance of the lands hereon marked pink, commencing at the eastern bank of the mouth of the Etobicoke River, being on the limit of the Toronto Purchase in the year 1787, then north twenty-two degrees west, six miles more or less, until it intersects a line on a course north forty-five degrees west produced, from the outlet at Burlington Bay, then along the said produced line one mile more or less, to the lands granted to Captain Brant, then north forty-five degrees east one mile and a half, then south forty-five degrees east three miles and a half more or less, to Lake Ontario; then north-easterly along the water's edge of Lake Ontario to the

head of Lake Ontario there is a smaller lake, within a long beach of about five miles, from whence there is an outlet into Lake Ontario, over which there is a good bridge. (This smaller lake was once known as Geneva Lake. The name was changed to Burlington Bay by proclamation, 16th July, 1792.—Ed.)

At the south end of the beach is the King's Head, a good inn, erected for the accommodation of travellers by order of His Excellency Major-General Simcoe, the Lieutenant-Governor. It is beautifully situated at a small portage which leads from the head of a natural canal connecting Burlington Bay with Lake Ontario, and is a good landmark.

Burlington Bay is perhaps as beautiful and romantic a situation as any in interior America, particularly if we include with it a marshy lake which falls into it, and a noble promontory that divides them. This lake is called Coote's Paradise, and abounds with game. (So called from Capt. Coote, of the 8th Regt., a keen sportsman.—Ed.)

From the head of the lake, following the shores of the Ontario, we proceed eastward along the borders of the county of Lincoln, a very fine and populous settlement, consisting of twenty townships, containing about 6,000 souls, and furnishing five battalions of militia. There are a great many small rivers which fall into the lake between Burlington Bay and Niagara, the most beautiful of which are those called the Twelve and the Twenty. These rivers, previously to their flowing into the lake, spread behind a beach which impedes their course, and the stream, finding only a small outlet into the lake, is ponded back, and forms a spacious basin within; the banks are high, but not broken, and generally covered with fine pine trees.

Newark (or, as it is sometimes [generally, 2nd edition] called, the town of Niagara, West Niagara, and British Niagara), stands at the

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eastern bank of the River Etobicoke, being the place of beginning, containing seventy thousand seven hundred and eighty-four acres, whenever the goods of the aforesaid value shall be delivered to us Reserving to ourselves and the Missisagua nation the sole right of the fisheries in the Twelve Mile Creek, the Sixteen Mile Creek, the Etobicoke River, together with the flats or low grounds on said creeks and river which we have heretofore cultivated, and where we have camps. And also the sole right of the fishery in the River Credit, with one mile on each side of said river. This agreement done, signed, and executed by us at the River Credit, this second day of August, one thousand eight hundred and five. (Signed) W. Claus, Dep. Sup. Gen. (on behalf of the Crown), Chechalk, Quinepenon, Wabukanyne, Okemapemesse. Witnesses present: John Williams, Capt. 49th Regt.; John Brackenbury, Ens. 49th Regt.; P. Selby, Asst. Sec. Indian Affairs; J. B. Rousseau."

(The document confirmatory of the "Toronto Purchase," 1805, will be given hereafter. The date of the original purchase of this tract was 1787.—Ed.)

north-east angle of the county of Lincoln, nearly opposite to the fort of Niagara, at the entrance of the Niagara River; the western point, which forms the mouth of the river, is called Missisaga Point. It is a handsome town, of about a mile square, with its streets at right angles. Here is the gaol and court-house of the home district; and near to it, on the heights above Navy Hall, is Fort George, where there are quarters for almost a whole regiment, and the works and buildings now enlarging.

Before York was made the seat of government, this place was sometimes honoured with the residence of His Excellency the Lieutenant-Governor, and the first Parliament met here.

The River Niagara affords a noble harbour from its mouth to Queenstown, about seven miles up, for vessels of any size. The white fish are taken here in great abundance, and are reckoned a delicacy; they are, however, as useful as delicate, serving the new settlers for constant food, as the salmon do on the north side of the lake.

There is a good road from Newark along the bank of the River Niagara to Fort Erie, passing through Queenstown and Fort Welland, formerly called Chippewa; Queenstown, or the lower landing (where there are huts for a regiment), is at one end of the carrying-place, as Fort Welland is at the other. When the wind serves, vessels run up from Newark to Queenstown, and unload their cargoes, receiving packs of peltries in return, for the Lower Canada merchants. Fifty waggons have passed this carrying-place in the course of a day. At Forts Welland and Erie are block-houses, and detachments of the troops from Fort George. The merchandize is transported in boats between the two places.

There is a stage runs from Newark to Fort Welland. [Chippewa. 2nd Edition.] We shall say little of the Falls of Niagara (of which so many persons have written). This immense cataract is a little below the mouth of the River Welland, and is no less wonderful than grand and magnificent. On the avenues to it are good mills; and there is no doubt but profitable water-works might be erected, immediately where it tumbles from a piece of stony flat called the Table Rock.

Above the Falls, near the upper mills, is a curious spring, the air or vapour of which catches fire, and is emitted with some force; the flame being collected with the pipe of a stove, was sufficiently strong to boil a tea-kettle of water.

The saw-logs are conveyed to this mill in a very remarkable manner. They are cut upon the banks of the River Welland [or Chippewa. 2nd Edition], and floated down to its mouth, where there is a reservoir made to contain them, by a chain of log-pens. From hence it is very dangerous to go in a boat to the mills on account of the great rapid, and the probability of being sucked into the vast vortex of the Falls. To avoid this, small poles have been fixed together from the reservoir to the mill (upwards of a mile), and floating about the distance of eighteen or twenty feet from the shore; they are kept off the shore in their places by poles projecting from the shore; and thus the chain of poles, rising and falling with the waters, and always floating on the surface, make a kind of canal, into which the logs are launched one by one, and so carried from the reservoir to the mill.

Below the Falls is a place called the Whirlpool, where the river has apparently made an effort to break its way through to the westward; but not having power to do so, has left an elbow (where there is a constant and great eddy), and broken through the more penetrable strata to the northward.

Fort Erie is situated at the eastern extremity of Lake Erie, where its waters narrow into the Niagara River. There is a small, old fort here, with a good new block-house. A company of soldiers are quartered here, as there are also at Fort Welland, for the purposes of transporting the public stores. Fort Erie has frequently suffered from the westerly gales, which occasion the lake sometimes to rise very considerably. The new fort is projected on a small height in the rear of the present garrison. In passing along the northern shore of Lake Erie, westward from Fort Erie, nothing very material occurs until you are imperceptibly intercepted by Long Point Bay; the principal feature within this distance is the Point Abino, a shelter for vessels, which find here a good anchorage. The Grand River discharges itself into the lake about twenty-four miles beyond Point Abino; its entrance being covered by a rocky island at some distance from the shore. Between Point Abino and the Grand River is a sugar-loaf hill, which affords a good land-mark for vessels.

The townships in this quarter are settling very fast, and several mills are already erected.

In Woodhouse and Charlotteville, which lie immediately within the long promontory, there is a great space of country, thinly timbered and without underwood, which greatly facilitates cultivation.

It is well calculated for roads, and is sufficiently open for carriages used in Europe, looking more like a royal forest than the uncultivated lands of nature.

The loyal peasant, sighing after the government he lost by the late revolution, travels from Pennsylvania in search of his former laws and protection; and having his expectations fulfilled by new marks of favour from the Crown, in a grant of lands, he turns his plough at once into the most fertile plains, and an abundant crop reminds of his gratitude to God and to his King. [This paragraph is omitted in the 2nd Edition.]

Above Turkey Point, on the heights, is the townplot of Charlotteville; and at the extremity of the point is the site of the projected wharves and docks, with a good channel leading to it. Within the point is an extensive marsh, where the settlers feed great numbers of cattle, which are driven to different parts of the Province for consumption. Long Point, now called the North Foreland [the five words preceding are omitted in 2nd Edition], is a peninsula projecting from the south-west angle of the township of Walsingham eastward into the lake, about twenty miles, making an arm which forms a very large bay. Where the peninsula joins to the main, there is a creek, which, when the waters are high, is of sufficient depth for boats to pass from within the bay, over the neck into the lake; and when the waters are low, the distance is so short that the batteaux are easily hauled over. Pottohawk Point is a small projection from Long Point, within and connected nearly with Turkey Point by a chain of rushy islands, running across the uppermost part of the bay.

From Charlotteville there is a good road through the country to the Mohawk village on the Grand River.

Proceeding westward from Long Point, you pass Kettle Creek and River Barbut, about twenty-five miles of coast, where the banks of the lake are high, until you arrive at Landguard, formerly called Point aux Pins; from hence there is a short communication by land to Chatham, at the Forks of the River Thames.

Leaving Landguard you arrive at Point Pelé, or the South Foreland, which makes a great projection into the lake; and having doubled the point, you enter the settlements made by the loyalists in the townships of Mersea, Gosfield, and Colchester; and having continued westward through those townships, you arrive at Malden, situated at the mouth of the strait, or River Detroit.

The military post of Amherstburgh is in the township of Malden, opposite to the Isle au Bois Blanc, to which it furnishes a small detachment, and commands the east channel of Detroit. There is a good and safe anchorage between the island and the main shore, which is well adapted for wharves, and has other conveniences for naval or commercial purposes. In going up the Detroit, you pass a low, marshy island, called Turkey Island, or Fighting Island, nearly four miles long. The channel on the west side of this island is the best; and the town of Sandwich presents itself on a small plain, close to the bank of the river. This town has been laid out for the reception of the British merchants who, agreeably to the treaty of amity, commerce and navigation, made their election of remaining British subjects. It is rapidly increasing. There is a good windmill in front of the town; the Huron Church is at its northern extremity; and the shore is well calculated for the building of wharves and for the security of vessels in the winter. The district gaol and court-house are erected here, and small parks for the convenience of the town are laid out in its rear and given to the builders of the first houses.

There are several windmills on the Detroit, and an orchard adjoining almost every house. The settlers are numerous, and the improvements handsome and extensive. When the fruit-trees are in blossom, the prospect as you pass through the strait is, perhaps, as delightful as any in the world.

Leaving it, you pass Hog Island, and enter Lake St. Clair, which is small in comparison to either Ontario or Erie, and shallow throughout. It receives the waters of Lakes Superior, Michigan and Huron, by a long channel from north to south, called River St. Clair; it also receives the waters of the Thames, which fall into the lake on the south-east side. About the mouth of this river are large, extensive marshes, or natural meadows, which, with the exception of small tracts of woodland on the banks of the river, and a few woody islands, extend about twelve miles up the country, and about four or five miles in depth, affording sufficient hay for a numerous settlement, and abundance to spare.

About fifteen miles up the River Thames is the town of Chatham, situated in a fork of it, on a very desirable spot, so well protected, and so central, that, as the population increases, it will doubtless become a large and flourishing place. A block-house was erected

here by His Excellency Major-General Simcoe; and it was made a depôt for the fine whale-boats which were built by His Excellency's directions. Indeed, it possesses many advantages: the point is extremely well suited for the launching of vessels, and the river is sufficiently deep for those of any size; so that a secure arsenal and building-place, and an excellent dock, might be made in the lesser branch of the fork, upon which there is now a mill.

Firs are easily floated down from the pinery above, and other timber necessary for ship-building may be procured by water carriage.

The greatest disadvantage is the bar across its embouchure into Lake St. Clair; but that is of sufficient depth for small craft rigged, and for large vessels when lightened; and it would answer as a good winter harbour for any vessel which navigates the lakes, if she made herself light enough to pass over the bar and go into the river; and this might easily be effected for all vessels, by having a flat-bottomed lighter stationed at the mouth of the river for that especial purpose.

About twenty miles above Chatham is a village of Moravians, under the guidance of four missionaries of the United Brethren; and here they have a chapel. The converts are Indians, who are peaceable and civil; their principal employment is in attending to their corn-fields, and to the making of maple sugar. Above the village, on the river, is a large spring of petroleum. Passing upwards from the Moravian village, the Thames continues a fine serpentine canal, without falls, with a natural tracking-path great part of the way.

The windings of the river leave fine rich bottom. There is beautiful open land on the tops of the banks, which are high, but not broken. Passing the Delaware village, and a settlement in the beautiful plains of the Delaware township, where there is a fine pinery and good mills, you arrive at the spot selected by His Excellency Major-General Simcoe for the site of London.

This situation is on the main fork of the River Thames, and considered by His Excellency as the proper place for the seat of government. It offers many striking advantages for the capital of the Province; is centrically situated in regard to the Lakes Erie, Huron and Ontario; and around it is a large tract of land well calculated for agricultural purposes. It communicates with Lake St. Clair and the Detroit by the River Thames. It communicates with Lake Huron by the northern or main branch of the Thames and

a small portage; and it communicates with the Grand River or Ouse; and with Lake Ontario by the military way called Dundas Street.

The proposed fortifications on the heights of Charlotteville, above Turkey Point, and within the North Foreland, promise it protection from Lake Erie. The work at Chatham protects the approach to it up the Thames; and there are several strong posts which guard it from the eastward. Add to this, that its local situation secures the interest and attachment of that vast band of Indians, the Chippewa nation.

The township of London is also well situated for health, being plentifully watered with springs. The streams have gravelly bottoms, and the water is very pure. It is an excellent tract of land; a black, rich soil. It abounds with black and white walnut, cherry, bass, elm, sugar maple, hickory, beech, white and black ash, and several other kinds of timber.

This tract is extremely well watered by the windings of the Thames, and also receives a principal branch of the River Chenal Ecarté. Below the fork of the Thames is an island, made by the river having broken through a small isthmus, and several springs add to the stream in the vicinity of the island. The banks in general are high, with intervals here and there of fine flats, originally used by the Indians as planting grounds, particularly on the north side of the river, adjoining the fork. On the east side of the fork, between the two main branches of the River Thames, on a regular eminence, about forty feet above the water, is a natural plain, interspersed with small groves of wood, affording in its present state the appearance of a beautiful park cultivated with great cost and taste. The pines which skirt the river show their tops above the banks, and make a fine termination to the whole.

From London you pass up the Thames to Dorchester, upon another fork of that river; and from Dorchester still higher to Oxford, which is situated upon the upper forks. From hence Dundas Street extends forty-two miles to Burlington Bay. From thence you pass immediately into Lake Ontario, through a small outlet, from whence it is thirty-five miles to York, the present seat of the Government.

A TABLE

SHEWING

THE DIRECT DISTANCES

Between the Principal Places, &c., in

UPPER CANADA,

AND

Their Bearings, nearly, by the Magnet, from York, on Lake Ontario.

	East-south-east	East by north	West-south-west	East by south ¼ south	East by north ¼ north	South-south-east ¼ east	South-west and by west ½ west	South and by west ½ west	South-west and by west	North and by west ½ west	South-south-west ½ west	West-south-west	South west and by west ½ west	North ½ west	East and by north	East	South-west	South-west and by west ½ west	South-east and by east ½ east	South-west and by west ¾ west	South-west and by west ½ west	East ¾ north	South-westerly
Burlington Bay																							
Carleton Island																							183
Chatham																						315	125
Detroit																					47	362	170
Genesee River																				278	230	95	109
Gr. Riv., where it inter. Dundas St.																			139	150	104	212	22
Head of Lake Ontario																		30	109	179	133	183	1-16
Hungry Bay																	178	208	82	355	308	20	178
Kingston																28	175	204	92	354	308	11	175
Lake Simcoe															151	163	62	80	120	221	180	161	62
Lake St. Clair														194	321	321	148	119	244	9	14	329	140
London													73	121	252	256	78	49	173	102	59	261	70
Long Point, on Lake Erie												68	117	115	210	208	54	48	129	151	103	217	54
Matchedash, or Gloucester, on Lake Huron											162	149	218	35	180	198	110	118	170	239	204	192	110
Mohawk Village, Grand River										120	43	52	121	80	201	204	27	6	133	153	107	210	19
Mouth of Grand River, or Ouse									38	140	33	83	144	89	180	179	39	44	101	178	131	187	30
Mouth of the Thames, or La Tranche								144	121	218	117	73	..	193	321	321	148	119	244	34	14	129	140
Niagara							178	39	61	120	70	111	178	67	144	145	36	65	74	210	164	150	36
Osweigatchie, or Johnstown						202	381	239	260	224	270	310	381	204	60	70	232	263	150	412	367	54	232
Oswego					109	125	296	154	183	202	180	233	296	160	63	41	160	190	52	330	282	60	160
Oxford on the Thames				210	283	86	99	60	26	129	55	28	99	96	225	229	51	22	159	130	85	233	43
Presqu'isle de Quinté			165	76	120	85	260	121	140	130	153	191	260	90	62	72	113	144	60	292	247	72	113
Sodus		71	190	24	130	105	275	133	165	195	159	215	276	146	80	61	141	170	32	309	262	79	141
York	125	85	80	140	205	30	78	54	57	90	83	107	178	38	149	155	33	60	95	209	164	157	33

The distance in miles between two places is found in the square at the intersection of the lines drawn both ways from those places; and the bearings of each place from York is found at the bottom of each column of squares respectively, as for example:

From Osweigatchie to Detroit is 412 miles, the former bearing east by north ¼ north, the latter south-west and west ¾ west, from York.

From London to York is 107 miles, on a course west-south-west.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—NOVEMBER, 1873.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above aver'ge	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Resl'tant.	MEA		
1	29.626	29.803	29.887	29.7928	32°.2	40°.2	34°.7	35°.8	− 6°.58	.162	.200	.171	.171	89	80	85	82	W	W	S W	S 68° W	13.0	14.8	2.3	11.23	11.28	...	0.4
2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	S W	S W	S 53 W	10.0	10.0	11.4	9.82	10.06	.110	...
3	.564	.851	.840	.7620	37.6	34.8	25.0	33.07	− 8.62	.183	.095	.083	.120	81	46	60	62	W	N W	S W	N 7[illegible] W	18.1	19.0	5.5	15.24	16.11	...	Inap.
4	.652	.471	.626	.5917	36.5	48.1	41.6	41.88	+ 0.47	.189	.239	.211	.206	87	71	80	78	S W	S W	N W	S 60 W	10.5	14.2	16.0	7.74	10.51	...	...
5	.848	.934	.938	.9187	28.2	31.9	27.2	29.18	−11.97	.127	.137	.122	.12	82	76	84	75	W	N	N	N 29 W	1.0	3.2	1.0	5.55	6.04	...	...
6	.982	.906	.923	.9475	20.3	35.8	34.4	30.53	−10.37	.090	.121	.136	.119	82	57	69	70	Calm.	S	S E	S 22 E	0.0	7.0	5.7	1.37	1.63	..	...
7	.754	.570	.427	.565.	34.0	43.4	44.8	41.28	+ 0.76	.163	.188	.261	.219	83	66	88	79	E	E	S E	S 73 E	2.8	5.4	2.0	3.67	3.91	.060	...
8	.235	.312	.407	.3320	44.1	44.8	39.4	42.36	+ 1.98	.281	.224	.193	.230	97	75	80	87	S	W	W	N 84 W	1.4	19.3	5.4	8.68	10.40	.260	...
9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	N	N W	N 29 W	4.0	14.0	6.7	7.92	8.57	.080	Inap.
10	.738	.669	.675	.6945	20.7	32.6	27.2	27.62	−12.05	.104	.142	.139	.131	94	77	94	87	N	N W	Calm.	N 54 W	0.2	14.0	0.0	3.25	3.43	...	...
11	.605	.496	.248	.4292	30.8	37.3	31.9	33.43	− 5.87	.154	.128	.173	.152	90	57	96	80	S W	Calm.	E	S 22 E	7.8	0.0	16.8	2.85	7.69	...	1.2
12	.111	.174	.277	.2053	30.4	29.3	26.8	28.38	−10.58	.153	.114	.122	.127	90	71	85	81	N W	N W	N W	N 29 W	7.6	13.4	2.0	6.18	7.01	...	Inap.
13	.316	.400	.560	.4425	22.1	23.2	20.0	20.68	−17.92	.108	.076	.093	.092	91	61	87	83	N W	N	N W	N 31 W	6.6	17.0	0.6	6.46	6.66	...	...
14	.683	.678	.649	.6670	10.9	29.0	24.0	22.15	−16.08	.061	.077	.107	.082	86	47	81	70	N W	W	S W	S 84 W	3.0	8.7	6.0	5.18	5.78	...	...
15	.457	.304	.148	.2793	25.7	35.8	32.2	31.13	− 6.7[illegible]	.121	.128	.162	.139	87	61	89	80	Calm.	W	N E	N 85 W	0.0	0.8	2.2	0.28	1.57	...	1.0
16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	Calm.	E	S 38 W	7.2	0.0	2.0	1.71	3.02	...	0.1
17	.119	.063	.062	.0782	30.1	30.1	28.6	29.22	− 7.8[illegible]	.164	.150	.141	.148	98	89	89	91	E	N E	N E	N 66 E	5.4	8.9	4.4	6.87	6.96	Inap.	0.1
18	28.938	28.864	.002	28.949[illegible]	27.5	31.3	27.2	28.58	− 8.0[illegible]	.133	.113	.097	.116	90	64	65	74	N	N	N W	N 14 W	9.7	20.5	7.6	11.21	11.57	...	...
19	29.170	29.232	.340	29.262	24.3	27.2	24.3	25.15	−11.0[illegible]	.116	.112	.111	.112	90	75	85	83	N	N W	N	N 27 W	1.8	13.4	4.0	8.17	8.34	...	...
20	.449	.552	.709	.581[illegible]	20.3	27.2	19.6	22.7[illegible]	−12.9[illegible]	.102	.078	.086	.089	94	52	80	74	Calm.	W	W	W	0.0	17.8	4.7	6.09	6.12	...	0.1
21	.655	.569	.721	.6518	22.8	25.4	21.8	23.03	−12.25	.107	.125	.106	.111	87	91	90	89	N	N E	Calm	S 48 E	1.0	1.4	0.0	0.48	2.13	...	1.0
22	.808	.850	.937	.8783	20.0	33.7	30.8	28.4[illegible]	− 6.37	.100	.152	.148	.136	92	78	86	86	Calm.	Calm	Calm	N 66 W	0.0	0.0	0.0	0.40	0.40	...	0.1
23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	E	E	S 63 E	3.5	3.4	14.5	4.29	5.04	...	1.5
24	.243	.124	.145	.1640	29.0	29.0	27.5	28.20	− 5.76	.154	.117	.129	.133	97	74	86	86	N	N	Calm.	N 16 E	8.2	5.8	0.0	6.36	7.56	...	3.5
25	.104	.171	.393	.2442	23.2	23.6	16.4	20.68	−12.7[illegible]	.110	.084	.082	.094	88	67	88	84	N	N W	N W	N 17 W	3.2	15.5	7.4	7.57	7.83	...	0.4
26	.578	.605	.601	.5955	8.0	19.2	14.6	14.07	−18.87	.053	.076	.067	.066	87	72	78	80	N W	Calm.	N E	N 11 E	0.7	0.0	10.0	2.80	3.54	...	0.3
27	.298	.327	.627	.4308	16.4	16.0	12.7	14.73	−17.7[illegible]	.089	.074	.062	.074	97	83	82	87	N E	N	W	N 36 E	11.0	7.6	2.2	7.67	9.34	...	9.5
28	.797	.829	.903	.8570	6.2	23.9	19.2	16.57	−15.46	.052	.114	.09[illegible]	.8[illegible]	90	89	92	89	N	S	W	N 62 W	4.8	2.0	5.8	1.79	3.14	...	0.1
29	30.072	30.103	30.120	30.1073	20.3	22.1	19.6	19.95	−11.55	.102	.082	.084	.085	94	68	80	79	W	S W	N W	S 82 W	7.5	9.5	13.5	8.42	8.90	...	...
30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	N E	N E	N 31 E	5.0	4.3	8.6	5.42	5.50	...	0.3
	29.5121	29.5167	29.5666	29.5371	24.[illegible]	31.00	26.88	27.58	− 9.[illegible]	.127	.12[illegible]	.127	.126	90	70	3	81	.....	.....	.....	.....	5.17	9.03	5.61	...	6.67	...	19.6

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 A.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.239 at 11 p.m. on 30th. } Monthly range
Lowest Barometer.....28.864 at 2 p.m. on 18th. } 1.375.

Self-registering Ther.:
- Maximum temperature .....51°4 on 4th. } Monthly range 50.6.
- Minimum temperature.....0°8 on 28th. }
- Mean maximum temperature .....34°17. } Mean daily range 13°09.
- Mean minimum temperature .....21°08. }
- Greatest daily range.....24°4 from a.m. to p.m. of 28th.
- Least daily range.....3°4 from a.m to p.m. of 30th.

Warmest day.....8th; mean temperature .....42.30 } Difference=28°23.
Coldest day.....26th; mean temperature .....14.07 }

Maximum Radiation:
- Solar .....108°5 on 5th. } Monthly range 112.0.
- Terrestrial.....—3°5 on 26th and 28th. }

Aurora observed on 2 nights, viz.: 22nd and 25th.

Possible to see Aurora on 11 nights; impossible on 19 nights.

Raining on 5 days: depth 0.510 inches; duration of fall 16.3 hours.

Mean of cloudiness, 0.77.

WIND.

Resultant direction N. 50° W.; resultant velocity 3.08.

Mean velocity 6.67 miles per hour.

Max m velocity 33.8 miles, from 9 to 10 a.m. of 3rd.

Most windy day 3rd; mean velocity 16.11 miles per hour.

Least windy day 22nd; mean velocity 0.40 miles per hour.

Most windy hour 11 a.m.; mean velocity 9.78 miles per hour.

Least windy hour 5 a.m.; mean velocity 4.89 miles per hour.

Solar halos 23rd and 25th. Lunar haloes 6th and 25th.

Fog on 8th.

27th, Bay frozen over.

It will be seen from the Comparative Table that November, 1873, is the coldest November recorded at this Observatory, and the depth of snow is six times the average amount for November, and almost double that of 1868—the heaviest fall previously recorded.

COMPARATIVE TABLE FOR NOVEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum	Minimum	Range.	RAIN. No. of days.	Inches	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1845	36.8	+ 0.4	59.5	8.1	51.4	7	1.105	4	5.0	...	...	0.53 lbs
1846	41.3	+ 4.9	55.6	18.0	37.6	12	5.805	2	0.4	..	...	0.64
1847	38.6	+ 2.2	57.9	8.7	49.2	14	3.155	3	Inap.	...	...	0.56
1848	34.5	— 1.9	49.0	15.9	33.1	9	2.020	3	1.4	N 81 w	1.81	4.81 mls
1849	42.6	+ 6.2	56.4	26.5	29.9	10	2.815	2	1.0	N 39 w	1.55	4.78
1850	38.8	+ 2.4	62.8	11.0	51.8	7	2.955	1	Inap	N 42 w	1.43	5.27
1851	32.9	— 3.5	50.2	13.8	36.4	5	3.855	6	6.7	N 50 w	1.25	4.70
1852	36.0	— 0.4	50.4	18.2	32.2	7	1.775	3	2.0	N 59 w	1.53	6.50
1853	38.7	+ 2.3	55.6	12.8	42.8	15	2.425	6	2.7	N 9 w	0.55	5.52
1854	36.8	+ 0.4	58.4	13.8	41.6	13	1.115	4	1.3	West	3.44	7.54
1855	38.6	+ 2.2	59.2	15.5	43.7	8	4.590	6	3.0	N 66 w	3.18	10.81
1856	37.4	+ 1.0	56.4	18.8	37.6	10	1.375	9	9.5	S 85 w	2.95	8.75
1857	33.5	— 2.9	58.2	— 3.5	61.7	14	3.235	9	6.9	S 61 w	5.45	9.25
1858	34.2	— 2.2	53.0	15.3	37.7	12	3.879	13	4.0	N 25 w	3.14	8.87
1859	38.9	+ 2.5	62.6	21.8	40.8	12	5.193	9	0.6	N 81 w	3.39	9.65
1860	37.9	+ 1.5	64.5	13.2	51.3	12	2.569	8	1.9	S 89 w	4.95	11.02
1861	37.1	+ 0.7	52.4	23.0	29.4	14	4.294	8	3.2	N 46 w	1.94	7.44
1862	35.6	— 0.8	58.0	16.2	41.8	11	2.205	11	5.3	N 46 w	3.00	6.60
1863	39.1	+ 2.7	67.0	17.8	49.2	13	3.656	6	0.1	N 88 w	3.50	7.86
1864	36.9	+ 0.5	60.2	21.0	39.2	11	3.765	8	4.5	S 72 w	3.82	7.64
1865	38.6	+ 2.2	63.2	23.6	39.6	5	0.975	7	1.1	N 79 w	2.98	7.90
1866	38.4	+ 2.0	54.2	21.8	32.4	13	2.963	4	2.2	N 88 w	3.06	6.96
1867	36.9	+ 0.5	60.4	9.6	50.8	8	1.835	9	0.9	N 87 w	4.02	7.76
1868	36.2	— 0.2	50.5	20.1	30.4	14	5.150	10	4.3	N 35 w	2.10	8.16
1869	32.7	+ 3.7	58.0	13.0	45.0	9	2.540	18	10.2	N 78 w	3.69	8.12
1870	36.6	+ 0.2	57.2	19.4	37.8	6	0.594	5	3.1	N 89 w	4.36	8.74
1871	30.6	— 5.8	47.1	0.0	47.1	10	2.655	12	4.5	N 45 w	4.08	10.35
1872	32.9	— 3.5	52.0	8.2	43.8	7	0.420	9	1.3	S 85 w	5.02	7.48
1873	27.6	— 8.8	51.4	0.8	50.6	5	0.510	18	19.6	N 50 w	3.08	6.67
Results to 1872.	36.42	...	56.68	15.06	41.62	9.94	2.928	6.94	3.21	N 78 w	2.77	7.70
Excess for '73.	— 8.84	...	— 5.28	— 14.26	+ 8.98	— 4.94	— 2.418	+ 11.06	+ 16.39	..	..	— 1.03

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—DECEMBER, 1873.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 P.M.	MEAN	Excess of Mean above Average	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Result't.	Velocity of the Wind. 6 A.M.	2 P.M.	10 P.M.	Res't. Vant.	MEAN	Rain in inches.	Snow in inches.
1	30.214	30.110	30.058	30.1247	9.9	12.7	14.5	12.50	−18.03	.060	.070	.073	.068	90	90	87	8	N E	N E	N E	N 51 E	14.0	17.2	14.5	15.19	15.32	...	5.8
2	29.851	29.961	29.658	29.7158	29.7	36.6	39.1	35.42	+ 5.37	.162	.213	.241	.205	98	98	100	97	E	E	Calm.	N 75 E	7.6	1.8	0.0	4.54	4.93	0.310	...
3	.543	.388	.174	.3528	41.2	44.1	47.4	44.35	+14.80	.259	.283	.328	.291	100	98	100	99	Calm.	S W	S E	S 18 E	0.0	0.8	7.6	1.50	1.90	.140	...
4	28.880	.346	.657	.3478	48.5	31.9	27.9	33.43	+ 4.33	.314	.143	.131	.164	91	79	86	81	S W	S W	W	S 51 W	39.8	22.0	26.4	21.98	23.32	Inap	...
5	29.902	30.003	30.068	30.0045	25.4	26.1	22.8	24.58	− 4.05	.119	.08	.107	.097	86	58	87	73	W	W	N W	W	15.2	2.0	2.5	9.19	9.54	...	0.1
6	30.095	30.144	30.194	30.1555	20.3	30.1	27.2	25.92	− 2.25	.095	.105	.112	.101	88	62	75	72	Calm.	Calm	Calm.	N 57 W	3.0	0.0	0.0	0.13	0.13	...	...
7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	E	N 81 E	0.5	8.0	5.8	3.95	4.09	...	...
8	30.020	29.853	29.618	29.8062	29.3	35.1	38.7	34.8	+ 7.57	.144	.198	.231	.192	90	97	98	93	Calm.	Calm.	Calm.	S 66 E	0.0	0.0	0.0	0.73	0.80	.310	...
9	29.580	.753	.881	.7612	44.5	39.1	36.6	39.20	+12.33	.237	.155	.154	.170	80	64	71	72	W	W	W	N 87 W	22.4	13.6	6.4	7.55	7.61	.010	...
10	.966	.984	.920	.9537	34.0	34.8	34.0	34.22	+ 7.77	.163	.132	.147	.149	83	65	75	75	Calm	Calm.	S W	N 70 W	0.0	0.0	1.0	1.87	1.93	...	...
11	.633	.390	.480	.485	33.3	40.2	37.6	36.85	+10.80	.181	.229	.192	.199	94	92	85	91	S	W	Calm.	S 13 W	7.0	0.2	0.0	1.07	1.34	.110	1.0
12	.404	.390	.396	.3992	35.1	36.2	32.9	34.73	+ 9.08	.182	.172	.175	.176	89	80	93	87	Calm.	Calm.	Calm.	Calm.	0.0	0.0	0.0	0.00	0.00	.005	1.3
13	.239	.256	.504	.3388	29.0	27.9	21.8	24.90	− 0.37	.147	.145	.106	.125	92	96	90	92	N E	Calm.	N W	N 2 W	2.4	0.0	2.0	3.85	4.83	...	7.0
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	W	S W	S 79 E	0.0	14.2	6.2	5.36	5.46	...	...
15	.819	.790	.812	.8117	30.4	29.7	27.2	28.43	+ 3.88	.153	.131	.124	.131	90	79	84	84	S W	W	Calm.	S 60 W	3.5	0.4	0.0	1.68	1.68	...	...
16	.822	.773	.780	.7893	24.6	37.6	29.7	30.45	+ 6.22	.114	.183	.147	.147	86	81	89	86	Calm.	Calm.	Calm.	Calm.	0.0	0.0	0.0	0.00	0.00	...	...
17	.718	.646	.600	.6503	20.0	37.3	32.9	30.72	+ 6.82	.093	.187	.177	.156	86	82	94	89	Calm.	Calm.	Calm	Calm.	0.0	0.0	0.0	0.00	0.00	Inap.	...
18	.652	.696	.650	.6642	31.9	38.4	35.1	35.48	+11.88	.173	.197	.182	.185	96	85	89	89	Calm.	W	N E	N 28 E	0.0	1.0	1.8	0.21	0.36	...	...
19	.457	.397	.507	.4578	35.5	32.0	30.1	32.73	+ 9.40	.185	.172	.150	.169	88	92	89	90	E	N	W	N 10 E	13.5	11.5	11.0	7.14	10.74	...	2.0
20	.498	.691	.901	.7177	32.9	26.8	21.0	26.37	+ 3.30	.161	.075	.075	.099	86	51	66	67	W	N W	N W	N 60 W	11.6	12.4	10.0	9.74	10.86	...	0.1
21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	W	N W	S 84 W	0.6	12.0	1.6	5.03	5.16	...	...
22	30.036	30.028	.994	30.0140	15.3	26.8	20.3	20.87	− 1.75	.082	.122	.096	.097	95	84	88	86	Calm.	S W	Calm.	N 87 W	0.0	1.2	0.0	0.79	1.45	...	...
23	29.943	29.901	.889	29.9103	17.1	29.7	23.2	22.80	+ 0.38	.086	.112	.109	.094	92	69	87	78	N	Calm.	Calm	N 53 W	0.4	0.0	0.0	0.18	0.18	...	...
24	.864	.814	.777	.8172	21.8	34.0	31.1	29.57	+ 7.35	.100	.156	.159	.142	90	79	91	86	Calm.	W	Calm	S 88 W	0.0	3.0	0.0	0.87	0.88	...	0.2
25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm	E	S	S 13 E	0.0	2.4	2.2	1.19	1.79	...	0.1
26	.278	.171	.174	.2065	33.7	35.8	33.3	33.83	+11.97	.175	.164	.189	.175	91	78	99	90	S	S	Calm.	S 2 E	0.4	5.0	0.0	2.10	2.10	.060	0.4
27	.163	.156	.209	.1828	32.6	32.9	29.7	31.45	+ 9.72	.181	.186	.147	.169	98	99	89	95	Calm.	N E	N	N 24 E	0.0	5.0	9.5	2.27	2.63	.050	0.8
28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	W	S W	N 83 W	16.4	17.0	25.4	12.21	14.56	...	...
29	.156	.225	.413	.2783	29.7	27.9	19.6	25.00	+ 3.48	.139	.083	.071	.098	85	53	66	70	S W	W	W	S 82 W	18.5	24.8	17.4	18.40	19.48	...	0.4
30	.669	.779	.795	.7525	9.9	21.4	21.0	18.03	− 3.42	.054	.083	.088	.080	81	72	78	78	N W	W	W	N 89 W	12.5	13.0	19.5	13.99	15.21	...	...
31	.811	.755	.692	.7542	20.3	33.3	31.5	28.20	+ 6.80	.091	.150	.141	.126	82	78	79	80	S W	S W	S W	S 58 W	12.9	15.8	7.6	15.13	15.42	...	...
	29.6620	29.6577	29.6847	29.6712	28.30	32.27	29.47	29.80	+ 4.94	.148	.151	.148	.147	90	79	86	84	.....	.....	.....	...	6.52	6.59	5.76	...	5.93	0.995	19.2

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR DECEMBER, 1873.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.218 at 8 a.m. on 1st } Monthly range=
Lowest Barometer.....28.880 at 6 a.m. on 4th } 1.338.

Self-registering Ther.
- Maximum temperature.....48°2 on 3rd } Monthly range=
- Minimum temperature.....6°4 on 1st } 41°8
- Mean maximum temperature.....34°42 } Mean daily range=
- Mean minimum temperature.....21°75 } 12°67.
- Greatest daily range.....26°4 from a.m. of 29th to a.m. of 30th.
- Least daily range.....4°2 from a.m. to p.m. of 26th.

Warmest day.....4th; mean temperature.....44°35 } Difference=31°85.
Coldest day.....1st; mean temperature.....12°50 }

Maximum Radiation { Solar.....108°0 on 20th } Monthy range=
Maximum Radiation { Terrestrial.....—1°0 on 21st } 109°0.

No Aurora observed.

Possible to see Aurora on 9 nights; impossible on 22 nights.

Raining on 10 days; depth, 0.995 inches; duration of fall, 54.3 hours.

Snowing on 12 days; depth 19.2 inches; duration of fall, 80.7 hours.

Mean of cloudiness, 0.81.

WIND.

Resultant direction, WEST; resultant velocity, 2.95.

Mean velocity, 5.93 miles per hour, from 6 to 7 a.m. of 4th.

Maximum velocity, 39.8 miles.

Most windy day, 4th; mean velocity, 23.32 miles per hour.

Least windy day, 12th, 16th, 17th; mean velocity, 0.00 miles per hour.

Most windy hour, noon; mean velocity, 7.60 miles per hour.

Least windy hour, midnight; mean velocity, 4.67 miles per hour.

Fog on 2nd, 3rd, 8th, 16th and 17th.

Lunar haloes on 5th and 7th.

Very heavy storm of wind on the morning of 4th. Bay again open, and remained so during month.

COMPARATIVE TABLE FOR DECEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1845	21.1	— 4.5	39.7	— 2.4	42.1	2	trace	12	4.7	...	..	0.70 lbs.
1846	27.5	+ 1.9	49.2	3.9	45.3	5	1.215	9	6.0	...	...	0.57
1847	30.1	+ 4.5	49.6	0.3	49.3	7	1.185	8	6.8	...	...	0.55
1848	29.1	+ 3.5	48.8	1.1	47.7	7	[illegible]	7	16.5	S 83 W	1.12	5.44 mls.
1849	26.5	+ 0.9	40.8	— 6.5	47.3	5	0.840	12	9.6	N 82 W	2.50	6.73
1850	21.7	— 3.9	48.8	— 9.0	57.8	2	0.190	18	29.5	N 44 W	2.95	7.40
1851	21.5	— 4.1	44.0	—14.8	58.8	6	1.075	15	10.7	N 82 W	4.00	7.37
1852	31.9	+ 6.3	51.0	13.2	37.8	7	3.995	10	20.1	S 69 W	1.03	6.54
1853	25.3	— 0.3	46.4	— 8.4	54.8	4	0.625	13	22.3	N 35 W	2.39	4.98
1854	21.9	— 3.7	44.8	— 7.0	51.8	5	0.590	12	17.2	N 44 W	4.30	8.56
1855	26.8	+ 1.2	47.0	— 5.2	52.2	6	1.845	10	29.5	S 88 W	5.29	11.38
1856	22.9	— 2.7	42.2	— 9.1	51.3	6	1.790	20	16.3	S 87 W	4.62	11.56
1857	31.9	+ 6.3	46.0	4.7	41.3	7	3.205	14	9.0	N 89 W	2.50	6.84
1858	27.4	+ 1.8	45.4	4.2	41.2	11	1.657	18	10.4	N 78 W	1.66	9.36
1859	17.9	— 7.7	54.8	— 6.0	60.8	3	1.035	23	37.4	N 53 W	4.29	10.77
1860	24.0	— 1.6	39.0	— 7.0	46.0	3	1.362	21	13.5	N 62 W	4.66	10.14
1861	31.1	+ 5.5	55.2	5.5	49.7	6	0.560	8	6.8	N 72 W	3.50	7.96
1862	28.8	+ 3.2	50.1	— 3.4	53.5	5	1.945	8	10.4	N 73 W	3.17	7.58
1863	27.0	+ 1.4	53.4	— 1.5	54.9	10	2.960	17	7.1	N 41 W	1.61	9.40
1864	24.7	— 0.9	50.4	—10.4	60.8	9	2.045	18	27.1	S 82 W	4.94	9.98
1865	27.7	+ 2.1	54.2	5.7	48.5	7	1.727	11	5.2	S 81 W	3.07	7.33
1866	25.1	— 0.5	51.0	— 5.6	56.0	7	2.790	13	15.5	S 88 W	4.98	9.91
1867	21.6	— 4.0	49 5	—12.8	62.3	7	1.408	21	13.6	S 81 W	4.82	10.32
1868	22.5	— 3.1	44.2	— 3.2	47.4	1	0.005	18	15.5	S 71 W	4.05	9.80
1869	28.7	+ 3.1	45.0	6.0	39.0	10	2.590	9	7.1	S 80 W	2.31	8.44
1870	26.5	+ 0.9	45.2	— 5.8	51.0	6	2.430	16	15.9	N 89 W	5.06	11.46
1871	19.9	— 5.7	48.2	—21.0	69.2	4	0.940	20	14.2	S 70 W	6.91	11.52
1872	18.7	— 6.9	40.0	—13.8	53.8	3	0.390	4	38.0	N 87 W	5.51	9.06
1873	29.8	+ 4.2	48.2	6.4	41.8	10	0.995	12	19.2	West	2.95	5.93
Res'lts to 1872.	25.63	...	47.28	—3.85	51.13	5.64	1.615	13.91	14.94	N 80 W	3.40	8.77
Excess for 1873	+ 4.17	...	+ 0.92	+ 10.25	— 9.33	+ 4.36	— 0.620	— 1.91	+ 4.26	...	...	— 2.84

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1873.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

Latitude 43° 39′ 4″ North. Longitude 5h. 17m. 33s. West. Elevation above

	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.
Mean temperature	17°.70	21°.51	26°.60	38°.58	51°.91	63°.70	68°.36
Difference from average (33 years)	— 5.37	— 1.44	— 2.78	— 2.58	+ 0.27	+ 2.02	+ 0.98
Thermic anomaly (lat. 43° 40′)	—15.10	—13.19	—13.50	—11.62	— 6.19	— 0.90	— 0.34
Highest temperature	46.0	43.0	45.0	61.2	76.4	89.5	87.5
Lowest temperature	— 18.4	— 10.5	— 6.0	24.4	30.0	40.0	47.5
Monthly and annual ranges	64.4	53.5	51.0	36.8	46.4	49.5	40.0
Mean maximum temperature	25.23	27.09	34.03	46.76	61.07	73.66	77.66
Mean minimum temperature	8.85	10.02	18.22	32.07	42.22	52.38	58.02
Mean daily range	16.38	17.07	15.81	14.69	18.85	21.28	19.64
Greatest daily range	37.9	36.4	32.3	25.7	29.0	32.7	31.5
Mean height of the barometer	29.6179	29.5590	29.5391	29.5310	29.5958	29.5671	29.5835
Difference from average (32 years)	—.0260	—.0660	—.0638	—.0588	+.0259	—.0065	—.0098
Highest barometer	30.062	30.123	30.246	29.844	30.091	29.956	29.865
Lowest barometer	29.042	28.843	28.797	29.087	29.122	29.159	29.170
Monthly and annual ranges	1.020	1.275	1.449	0.757	0.969	0.797	0.695
Mean humidity of the air	86	81	82	75	70	70	72
Mean elasticity of aqueous vapour	0.095	0.102	0.127	0.174	0.279	0.417	0.502
Mean of cloudiness	0.73	0.59	0.67	0.48	0.55	0.46	0.55
Difference from average (20 years)	0.00	— 0.12	+ 0.05	— 0.12	— 0.01	— 0.06	+ 0.05
Resultant direction of the wind	N. 78° W.	N. 68° W.	N. 61° W.	N. 18° E.	N. 26° E	N. 18° E	S. 75° W.
" velocity of the wind	2.96	4.29	5.91	2.89	2.69	1.00	1.71
Mean velocity (miles per hour)	10.01	10.21	11.47	9.05	8.88	6.43	6.11
Difference from average (25 years)	+ 1.70	+ 1.57	+ 2.60	+ 0.88	+ 2.15	+ 1.28	+ 1.18
Total amount of rain	1.110	0.000	1.756	3.975	2.205	0.680	1.913
Difference from average (33 years)	—0.086	—0.877	+0.168	+1.522	—1.009	—2.303	—1.307
Number of days rain	4	...	5	13	13	10	11
Total amount of snow	39.2	10.4	25.2	insp.	0.0	...	...
Difference from average (30 years)	+22-75	— 8.51	+12.84	— 2.33	— 0.07	...	...
Number of days snow	17	11	15	3	0	...	...
Number of fair days	12	17	14	16	13	20	5
Number of auroras observed	4	3	4	9	8	11	10
Possible to see aurora (No. of nights)	12	16	14	18	20	24	22
Number of thunder storms	0	0	0	3	1	4	5

REGISTER FOR THE YEAR 1873.

TORONTO, ONTARIO.

Lake Ontario 108 feet. Approximate elevation above the sea, 342 feet.

Aug.	Sept.	Oct.	Nov.	Dec.	1873.	1872.	1871.	1870.	1869.	1868.	1867.
66.59°	57.28°	45.69°	27.58°	29.80°	42.94°	42.92°	43.81°	45.93°	43.13°	43.33°	43.84°
+ 0.40	— 0.78	— 0.16	— 8.84	+ 4.17	— 1.18	— 1.20	— 0.31	+ 1.81	— 0.99	— 0.79	— 0.28
— 1.91	— 4.22	— 8.11	—15.62	— 6.20	— 8.06	— 8.08	— 7.19	— 5.07	— 7.87	— 7.67	— 7.16
85.0	79.0	69.2	51.4	48.2	89.5	96.0	89.5	88.4	89.0	93.4	95.2
46.4	33.5	24.2	0.8	6.4	— 18.4	— 13.8	— 21.0	— 6.6	— 5.4	— 15.6	— 12.8
38.6	45.5	45.0	50.6	41.8	107.9	109.8	110.5	95.0	94.4	109.0	108.0
75.52	66.17	53.79	34.17	34.42	...	...	...	...	...	...	...
57.54	46.82	37.46	21.68	21.75	...	...	...	...	...	...	...
17.98	19.35	16.33	13.09	12.67	16.93	17.59	16.46	15.71	14.61	15.26	15.47
28.8	27.4	31.4	24.4	26.4	37.9	37.8	34.6	36.2	33.6	38.7	31.6
29.6768	29.6274	29.6507	29.5371	29.6712	29.5964	29.6079	29.6066	29.5956	29.5970	29.6421	29.6140
+.0555	—.0405	+.0046	—.0729	+.0207	—.0198	—.0083	—.0096	—.0206	—.0192	—.0259	—.0022
29.997	30.025	30.160	30.239	30.218	30.246	30.231	30.388	30.212	30.223	30.445	30.332
29.338	29.203	28.915	28.864	28.880	28.797	28.789	28.673	28.186	28.793	28.824	28.768
0.659	0.822	1.245	1.375	1.338	1.449	1.442	1.715	2.046	1.430	1.621	1.564
76	77	78	81	84	78	75	73	76	77	76	74
0.496	0.373	0.240	0.126	0.147	0.257	0.259	0.242	0.279	0.252	0.264	0.252
0.48	0.46	0.61	0.77	0.81	0.60	0.59	0.64	0.62	0.66	0.64	0.61
— 0.01	— 0.04	0.00	+ 0.03	+ 0.06	— 0 01	— 0.02	+ 0.03	+ 0.01	+ 0.05	+ 0.03	0.00
N. 84° E	N. 81° W.	WEST.	N. 50° W.	WEST	N. 58° W.	N. 72° W.	N. 72° W	N. 45° W.	N. 64° W	N. 57° W.	N. 60° W.
1.35	2.92	1.77	3.08	2.95	1.98	2.91	2.49	1.61	2.55	1.47	2.05
5.56	7.36	7.81	6.67	5.93	7.96	6.78	8.24	7.33	7.20	7.69	7.00
+ 0.34	+ 1.96	+ 1.68	— 1.03	— 2.84	+ 0.96	— 0.22	+ 1.24	+ 0.33	+ 0.20	+ 0.69	0.00
1.913	3.020	2 155	0.510	0.995	20.232	18.588	22.771	33.898	31.182	29.408	19.041
—1.089	—0.659	—0.262	—2.418	—0.620	—8.940	-10.584	—6.401	+4.726	+2.010	+0.236	-10.131
12	14	13	5	10	110	115	110	116	115	103	100
...	...	0.2	19.6	19.2	113.8	67.5	99.6	122.9	84.6	78.7	110.5
...	...	— 0.64	+16.39	+ 4.26	+44.69	— 1.61	+30.49	+53.79	+15.49	+ 9.59	+41.39
...	...	3	18	12	79	77	84	77	81	82	84
19	16	16	9	13	170	185	187	185	180	190	181
4	5	0	2	0	60	67	55	77	47	50	43
24	19	14	11	9	203	236	209	206	182	193	202
4	4	1	0	0	22	28	22	34	32	25	23

TEMPERATURE.

	1873.	Average of 33 years.	Extremes.	
	°	°	°	°
Mean temperature of the year	42.94	44.12	46.36 in '46	42.16 in '56.
Warmest month	July.	July.	July. 1868.	Aug., 1860.
Mean temperature of the warmest month	68.36	67.38	75.80	64.46
Coldest month	January.	February.	Jan., 1857.	Feb, 1848.
Mean temperature of the coldest month	17.70	22.95	12.75	26.60
Difference between the temperature of the warmest and the coldest months	50.66	44.43	...	...
Mean of deviations of monthly means from their respective averages of 33 years, signs of deviation being disregarded	2.48	2.45	3.63 in 1843.	...
Months of greatest deviation without regard to sign	November.	January.	Jan., 1857.	...
Corresponding magnitude of deviation	8.84	3.64	10.3	...
Warmest day	June 19.	...	July 14, '68	July 31.
Mean temperature of the warmest day	75.68	77.78	84.50	72.75
Coldest day	Jan. 29.	...	Feb. 6, 1855. Jan. 22, 1857.	Dec. 22, '42.
Mean temperature of the coldest day	—5.75	—1.35	—14.38	9.57
Date of the highest temperature	June 19.	...	Aug. 24 1854	Aug 19, '40.
Highest temperature	89.5	90.9	99.2	82.4
Date of the lowest temperature	Jan. 29.	...	Jan. 10, 1859.	Jan. 2, 1842
Lowest temperature	—18.4	—12.4	—26.5	1.9
Range of the year	107.9	103.3	118.2	87.0

BAROMETER.

	1873.	Average of 32 years.	Extremes.	
Mean pressure of the year	29.5964	29.6162	29.6770 in 1849	29.5602 in 1864.
Month of the highest mean pressure	August.	Sept.	Jan., 1849.	June, 1864.
Highest mean monthly pressure	29.6768	29.6679	29.8046	29.6525
Month of lowest mean pressure	April.	May.	March, 1859.	Nov., 1849.
Lowest mean monthly pressure	29.5310	29.5699	29.4143	29.5886
Date of the highest pressure in the year	March 5, 8 a.m.	...	Jan. 8, 1866.	Jan. 14, 1870.
Highest pressure	30.246	30.370	30.940	30.212
Date of the lowest pressure in the year	March 29, 4 p.m.	...	Jan. 2, 1870.	Mar. 17, '45.
Lowest pressure	28.797	28.683	28.166	28.939
Range of the year	1.449	1.687	2.133 in 1866.	1.303 in 1845.

RELATIVE HUMIDITY.

	1873.	Average of 31 years.	Extremes.	
Mean humidity of the year	78	77	82 in 1851.	73 in 1858.
Month of greatest humidity	January.	January.	Jan., 1857.	Dec., 1858.
Greatest mean monthly humidity	84	83	89	81
Month of least humidity	May, June.	May.	Feb., 1843.	April, 1849.
Latest mean monthly humidity	70	71	58	76

EXTENT OF SKY CLOUDED.

	1873.	Average of 20 years.	Extremes.	
Mean cloudiness of the year	0.60	0.61	0.66 in 1869.	0.57 in 1856.
Most cloudy month	December.	December.	...	...
Greatest monthly mean of cloudiness	0.81	0.75	0.83	0.73
Least cloudy month	June and September	August.	...	...
Lowest monthly mean of cloudiness	0.46	0.49	0.29	0.50

WIND.

	1873.	Result of 25 years.	Extremes.	
Resultant direction	N 58° W	N 62° W	...	...
Resultant velocity in miles	1.98	1.95	...	...
Mean velocity, without regard to direction	7.96	7.00	8.55 in 1860.	5.10 in 1853.
Month of greatest mean velocity	March.	March.	March, 1860.	Jan., 1848.
Greatest monthly mean velocity	11.47	8.87	12.41	5.82
Month of least mean velocity	August.	July.	Aug., 1852.	Sept., 1860.
Least monthly mean velocity	5.56	4.93	3.30	5.79
Day of greatest mean velocity	Mar. 16	...	Nov. 15. 1871.	Dec 2, 1848.
Greatest daily mean velocity	31.38	23.49	32.16	15.30
Day of least mean velocity	Dec. 12, 16, 17.	...	...	...
Least daily mean velocity	0.00	...	...	...
Hour of greatest absolute velocity	March 30, 1 to 2 a.m.	...	Dec. 27. 1861, 9 to 10 a.m.	Mar. 14. 1853 11 a.m. to n.
Greatest velocity	45.2	39.89	46.0	25.6

RAIN.

	1873.	Average of 33 years.	Extremes.	
Total depth of rain in inches	20.232	29.172	43.555 in '43	18.588 in '72.
Number of days in which rain fell	110	110	130 in 1861.	80 in 1841.
Month in which the greatest depth of rain fell	April.	Sept.	Sept., 1843.	Sept., 1848.
Greatest depth of rain in one month	3.975	3.679	9.760	3.115
Month in which the days of rain were most frequent	September	October.	June, 1869. Oct., 1864.	May, 1841
Greatest number of rainy days in one month	1	13	22	11
Day in which the greatest amount of rain fell	Sept. 28.	...	Sept. 14, 1843	Sept. 14, 1848
Greatest amount of rain in one day	0.950	2.056	3.455	1.000

SNOW.

	1873.	Average of 30 years.	Extremes.	
Total depth of snow in inches	113.8	69.1	122.9 in '70.	38.4 in 1851.
Number of days in which snow fell	79	63	87 in 1859.	33 in 1848.
Month in which the greatest depth of snow fell	January.	February.	March, 1870.	Dec., 1851.
Greatest depth of snow in one month	39.2	18.91	62.4	10.7
Month in which the days of snow were most frequent	November.	January.	Dec., 1872.	Feb., 1848.
Greatest number of days of snow in one month	18	14	24	8
Day in which the greatest amount of snow fell	Jan. 24.	...	Feb. 5, 1863. Mar. 27, 1870	Jan. 10, '57
Greatest fall of snow in one day	15.3	9.7	16.0	5.5

DIFFERENCE OF CERTAIN METEOROLOGICAL ELEMENTS FROM THEIR NORMAL VALUES FOR EACH QUARTER AND FOR THE YEAR, FROM DECEMBER, 1872, TO NOVEMBER, 1873, INCLUSIVE.

Quarters.	Barometer.	Temperature	Rain.	Days Rain.	Snow.	Days Snow.	Velocity of Wind.	Clouded Sky.
	in.	°	in.		in.		miles.	
Winter	— .0169	—4.66	—2.227	—7.36	+38.10	+11.96	+1.19	— .04
Spring	— .0322	—1.70	+0.681	+3.00	+10.44	+ 3.85	+1.88	— .03
Summer	+ .0131	+1.13	—4.699	—0.59	...	...	+0.93	— .01
Autumn	— .0363	—3.26	—3.339	—1.70	+15.75	+12.27	+0.87	.00
Year	— .0181	—2.12	—9.584	—1.66	+64.29	+28.08	+1.22	— .02

PERIODICAL OR OCCASIONAL EVENTS, 1873.

January ... 30. Lightning in S. W. in evening.
March ..... 13. Crows seen.
" 17. Blue birds seen.
" 23. Robins seen.
" 24. Wild geese passing.
April ..... 2. First schooner entered harbour.
" 4. First thunder storm of year; very general over Ontario, and causing great destruction of life and property.
" 11. Bay clear of ice.
" 12. Woodpeckers seen. 13th. Butterflies.
" 17. Steamer "City of Toronto's" first trip.
" 20. Crocus in bloom. 24th. Swallows seen.
" 25. Last snow of season. 30th. Frogs heard.
May ..... 1. First river steamer ("Spartan") arrived.
" 9. Maples in flower. 14th. Yellow birds arrived.
" 14. Last ice of season. 15th. Currants in flower.
" 17. Humming birds. 22nd. Plum trees in flower.
" 22. Baltimore birds arrived. 23rd. Wild strawberries ripe.
" 24. Musquitos numerous. 19th. Apple trees in flower.
" 30. Last frost of season; severe, and considerable injury resulting.
June ..... 16. Fire flies numerous.
August .... 23. Swallows gone.
September 11. First frost of season.
" 27. Humming birds numerous.
October ... 7. First ice of season.
" 20. First snow of season.
November.. 4. Niagara steamer laid up.
" 15. Snow birds numerous.
" 27. Bay frozen over.
" 26-27. Heavy snow storm.
December.. 4. Very heavy storm, doing great injury in various parts of the Dominion.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JANUARY, 1874.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	MEAN	Excess of Mean above Average	Tension of Vapour. 6 A.M.	2 P.M.	10 P M	M'N.	Humidity of Air. 6 A.M.	2 P.M	10 P.M	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Re-sult't	MEAN	Rain in inches.	Snow in inches.
					°	°	°	°	°												°							
1	29.680	29.685	29.740	29.7028	29.0	37.3	35.5	33.75	+12.42	.140	.153	.176	.159	87	69	85	82	S W	S W	S	S 43 W	2.5	15.0	6.9	8.36	8.50	...	...
2	.722	.734	.730	.7313	35.1	36.9	38.0	36.60	+15.32	.183	.208	.220	.206	89	95	96	95	S W	S	S E	S 11 W	3.2	3.6	3.6	3.21	3.85	Inap.	...
3	.624	.474	.502	.5257	40.2	46.6	43.4	43.02	+21.78	.238	.287	.251	.253	95	91	89	91	E	S	S W	S 14 E	4.0	6.8	1.8	3.79	5.04	.010	...
4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	S	N W	S 74 W	8.0	9.0	28.0	10.50	13.83	Inap	...
5	30.126	30.150	30.168	30.1548	23.9	28.3	23.9	25.67	+ 4.45	.114	.099	.095	.104	90	63	74	75	Calm.	S E	N E	N 6 E	0.0	2.3	7.4	2.94	3.95	...	...
6	29.992	29.744	29.646	29.7647	23.2	26.4	25.7	25.46	+ 4.18	.109	.142	.136	.129	88	98	97	93	N E	N E	N	N 47 E	13.0	15.8	16.5	11.47	12.37	.010	2.0
7	.485	.443	.255	.3792	27.9	31.5	32.6	30.67	+ 9.45	.152	.178	.185	.170	100	100	100	99	N	N E	N	N 13 E	18.0	6.4	8.8	12.66	12.75	.870	...
8	.088	.096	.292	.1683	32.6	33.7	28.6	31.57	+10.35	.184	.158	.131	.161	99	81	83	90	N W	W	S W	S 76 W	1.4	12.0	2.6	5.71	7.10	.110	Inap.
9	.295	.177	.075	.1767	31.5	35.1	34.4	33.25	+12.02	.155	.182	.191	.174	87	88	96	91	S W	S	S W	S 18 W	5.2	3.8	13.0	5.36	6.61	.150	0.5
10	.073	.101	.197	.1320	30.1	30.1	30.1	29.97	+ 8.70	.149	.149	.149	.147	89	89	89	88	S W	S W	S W	S 54 W	10.0	16.7	13.0	12.40	12.43	...	0.1
11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	W	W	west.	15.2	20.5	12.0	15.59	16.09	...	...
12	.817	.929	30.049	.9430	21.8	25.7	17.8	21.53	+ 0.17	.099	.094	.084	.094	84	67	87	82	W	W	Calm.	west.	16.0	17.8	0.0	11.20	11.23	...	...
13	30.043	.899	29.691	.8572	14.9	21.4	24.6	19.90	— 1.52	.074	.097	.127	.096	87	85	96	88	N E	N	S E	N 66 E	6.0	7.5	12.0	4.37	5.54	...	2.8
14	29.556	.545	.556	.5557	15.3	20.3	15.3	16.30	— 5.15	.076	.090	.076	.075	87	82	87	83	N	W	N W	N 45 W	7.6	3.5	26.4	9.92	12.54	...	0.9
15	.607	.5[illegible]7	.622	.5973	10.2	10.9	4.8	8.52	—12.98	.062	.055	.051	.054	92	78	94	86	W	N W	N W	N 63 W	10.9	22.4	6.6	13.73	14.13	...	...
16	.740	.814	.938	.8633	9.1	13.8	5.5	8.92	—12.67	.060	.063	.049	.053	89	77	88	81	N W	W	Calm.	N 51 W	15.2	13.0	0.0	8.92	9.18	...	...
17	30.010	.991	.926	.9667	10.9	24.6	25.0	20.38	— 1.23	.066	.081	.102	.085	94	60	76	77	Calm.	S W	Calm.	S 24 W	0.0	9.4	0.0	3.24	3.38	...	...
18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	S	S E	S 17 E	0.0	4.5	1.1	2.14	2.48	...	...
19	29.450	.501	.873	.6315	35.5	35.5	21.4	30.02	+ 8.27	.202	.202	.090	.161	97	97	78	90	Calm.	N	N	N 3 W	0.0	3.7	24.5	5.81	7.07	.190	...
20	30.107	30.097	29.895	30.0238	8.8	19.6	25.7	17.92	— 3.96	.050	.097	.114	.086	78	92	82	83	N	E	E	N 67 E	9.0	10.2	20.5	8.66	10.53	...	Inap.
21	29.644	29.655	.600	29.6230	33.3	36.5	36.9	35.52	+13.63	.189	.205	.210	.202	99	95	95	97	S E	Calm.	E	S 81 E	6.4	0.0	8.8	4.03	4.17	.330	3.0
22	.385	.287	.181	.2948	39.8	43.4	36.9	39.93	+18.06	.244	.282	.217	.247	99	100	99	99	E	Calm.	W	N 7 W	0.4	0.0	4.2	1.30	4.75	.720	...
23	.206	.571	.912	.5935	34.8	32.6	25.0	30.32	+ 8.36	.202	.113	.102	.138	100	60	76	79	Calm.	W	S W	N 75 W	0.0	20.0	4.4	11.62	12.43	.050	...
24	.875	.721	30.121	.9220	25.7	26.5	14.2	21.28	— 0.78	.121	.126	.065	.100	87	88	78	84	S W	N W	W	N 71 W	6.0	25.0	7.5	9.77	11.57	...	0.3
25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	N	W	N 68 W	13.0	9.4	8.5	8.15	10.69	...	0.2
26	30.171	.845	29.644	.8652	8.8	20.7	21.8	17.02	— 5.17	.050	.092	.106	.082	78	82	90	84	Calm.	S	N E	S 51 E	0.0	11.8	3.6	1.90	3.86	...	4.5
27	29.521	.387	.298	.3877	32.6	32.9	34.4	33.25	+11.02	.142	.178	.199	.174	77	95	100	91	S W	S	Calm.	S 29 W	1.0	4.6	0.0	1.94	2.21	.240	1.2
28	.162	.458	.792	.4982	34.0	25.2	21.8	27.30	+ 4.98	.196	.100	.085	.129	109	74	72	83	S W	N W	N W	N 42 W	0.2	21.0	0.4	9.04	9.31	.140	0.1
29	.776	.571	.909	.7677	25.0	31.9	12.4	22.10	— 0.28	.116	.165	.056	.106	86	92	73	82	W	W	N	N 63 W	2.0	17.2	19.0	7.26	10.60	...	0.3
30	30.181	30.136	.991	30.0925	0.8	2.6	0.8	1.13	—21.30	.039	.042	.039	.037	91	89	91	84	N E	N E	N E	N 35 E	4.4	10.8	15.0	10.89	10.98	...	0.4
31	29.954	30.067	30.174	30.0855	1.9	12.0	9.1	7 97	—14.52	.040	.048	.052	.049	86	65	80	79	N	N	Calm.	N 2 W	6.0	7.4	0.0	6.53	6.78	...	...
	29.6774	29.6548	29.6954	29.6779	23.58	27.48	23.91	24.79	+ 3.11	.128	.137	.124	.129	90	83	87	87	.....	.....	.....	.....	5.97	10.97	8.91	.....	8.58	2.820	0.2

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JANUARY, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest barometer .....30.295 at 11 p.m. on 25th } Monthly range
Lowest barometer .....29.073 at 6 a.m on 10th } 1.222.

Self-registering Thet.
- Maximum temperature .....57°5 on 4th } Monthly range
- Minimum temperature .....—4°0 on 30th } 61°5.
- Mean maximum temperature .....31°11 } Mean daily range
- Mean minimum temperature.....17°14 } 13°97.
- Greatest daily range.....36°0 from p.m. of 29th to a.m. of 30th.
- Least daily range ..... 4°8 from a.m. to p.m. of 2nd.

Warmest day..... 3rd; mean temperature.....43°02' } Difference=41°89.
Coldest day .....30th; mean temperature..... 1°13 }

Maximum { Solar .....106°0 on 17th and 18th } Monthly range
Radiation { Terrestrial .....—8°8 on 17th } 114°8.

Aurora observed on 2 nights, viz., 16th and 17th.

Possible to see Aurora on 8 nights; impossible on 23 nights.

Raining on 13 days; depth, 2.820 inches; duration of fall, 86.3 hours.

Snowing on 15 days; depth, 12.2 inches; duration of fall, 84.2 hours.

Mean of cloudiness, 0.78.

WIND.

Resultant direction, N. 61° W.; resultant velocity, 3.42 miles.

Mean velocity, 8.58 miles per hour.

Maximum velocity, 33.4 miles, from 6 to 7 p.m. of 4th.

Most windy day, 11th; mean velocity, 16.09 miles per hour.

Least windy day, 27th; mean velocity, 2.21 miles per hour.

Most windy hour, 6 p.m.; mean velocity, 11.07 miles per hour.

Least windy hour, 6 a.m.; mean velocity, 5.97 miles per hour.

Solar halo on 1st.

Lunar haloes on 1st, 3rd, 5th, 9th and 28th.

Fog on 2nd, 3rd, 7th, 19th, 21st, 22nd, 23rd, 27th and 31st.

Bay frozen on 16th—second time this winter.

COMPARATIVE TABLE FOR JANUARY.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity.
	°	°	°	°	°					°		
1846	26.7	+ 3.8	44.0	— 1.3	45.3	5	2.335	10	6.0	...	...	0.55 lbs
1847	23.3	+ 0.4	42.4	2.7	39.7	7	2.135	5	7.5	...	...	1.09
1848	28.7	+ 5.8	51.1	—11.4	62.5	7	2.245	8	7.1	N 82 w	2.03	5.82mls
1849	18.5	— 4.4	39.5	—14.2	53.7	4	1.175	10	9.2	N 63 w	3.06	6.71
1850	29.7	+ 6.8	46.4	9.9	36.5	5	1.250	8	5.2	N 37 w	0.69	5.80
1851	25.5	+ 2.6	43.4	—12.8	56.2	4	1.275	10	7.8	S 77 w	3.26	7.69
1852	18.4	— 4.5	37.3	—10.6	47.9	0	0.000	19	30.9	N 68 w	3.14	7.67
1853	23.0	+ 0.1	40.9	— 9.7	50.6	1	0.290	6	7.5	N 27 w	2.52	6.34
1854	23.6	+ 0.7	46.4	— 5.4	51.8	7	1.270	11	7.5	N 77 w	2.44	6.91
1855	25.9	+ 3.0	49.0	— 5.4	54.4	5	0.525	13	23.3	N 73 w	1.91	7 26
1856	16.0	— 6.9	34.4	—12.0	46.4	0	0.000	14	13.6	N 75 w	5.24	10.69
1857	12.8	—10.1	37.2	—20.1	57.3	3	Inap.	16	21.8	N 70 w	4.96	10.31
1858	30.0	+ 7.1	47.4	6.5	40.9	6	1.152	11	4.0	N 71 w	2.33	7.40
1859	26.4	+ 3.5	43.2	—26.5	69.7	6	1.449	19	16.4	S 81 w	3.17	8.76
1860	23.4	+ 0.5	46.4	— 6.8	53.2	6	0.740	16	8.7	N 89 w	6.09	9.37
1861	19.9	— 3.0	37.0	—11.2	48.2	4	0.685	23	20.6	N 86 w	2.92	9.30
1862	21.7	— 1.2	44.5	— 2.6	47.1	5	0.115	19	27.4	N 26 w	2.09	8.83
1863	28.1	+ 5.2	47.0	—14.0	61.0	10	1.122	17	20.6	N 61 w	1.13	7.23
1864	22.8	— 0.1	44.2	— 9.0	53.2	5	1.165	14	26.3	S 73 w	6.00	10.22
1865	17.7	— 5.2	37.2	— 9.0	46.2	1	0.440	18	14.8	N 85 w	4.80	9.39
1866	20.7	— 2.2	44.0	—14.0	58.0	4	0.522	19	10.3	N 75 w	2.98	9.34
1867	17.6	— 5.5	43.8	— 4.8	48.6	1	Inap.	21	12.0	N 55 w	3.27	6.96
1868	19.0	— 3.9	39.0	— 7.0	46.0	2	Inap.	21	14.6	S 83 w	3.97	8.91
1869	27.7	+ 4.8	45.0	— 1.0	46.0	4	0.887	12	9.8	N 72 w	3.40	9.21
1870	24.4	+ 1.5	45.0	— 3.2	48.2	8	3.412	18	21.3	S 89 w	2.63	8.98
1871	21.3	— 1.6	46.4	—13.2	59.6	8	0.864	23	13.6	S 49 w	2.56	9.84
1872	22.4	— 0.5	41.8	— 2.5	44.3	5	0.220	15	3.9	S 87 w	4.73	8.87
1873	17.7	— 5.2	46.0	—18.4	64.4	4	1.110	17	39.2	N 78 w	2.96	10.01
1874	24.8	+ 1.9	57.5	— 4.0	61.5	13	2.820	15	12.2	N 61 w	3.42	8.58
Resu'ts to 1873.	22.91	...	43.21	—8.11	51.32	4.59	1.194	14.09	17.18	N 80 w	3.17	8.38
Excess for '74.	+ 1.88	...	+ 14.29	+ 4.11	+ 10.18	+ 8.41	+ 1.626	+ 0.91	— 4.98	...	...	+ 0.20

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—FEBRUARY, 1874.

Latitude—43° 39′ 4″ *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A. M.	2 P. M.	10 P. M.	Mean.	6 A. M.	2 P. M.	10 P. M.	M'E'N		6 A. M.	2 P. M.	10 P. M.	M'N.	6 A. M.	2 P. M.	10 P. M.	M'N.	6 A. M.	2 P. M.	10 P. M.		6 A. M.	2 P. M.	10 P. M.	Resultant	MEAN.		
	°	°	°	°	°	°	°	°	°												°							
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	NE	N 40 E	6.9	9.5	13.2	7.8	7.87	...	..
2	30.135	29.894	29.751	29.9063	5.2	19.6	25.7	17.50	+ 5.12	.053	.098	.121	.091	95	92	87	89	NE	E	SE	N 82	10.4	16.4	7.8	12.4	14.23	...	4.1
3	29.640	.609	.711	.6598	18.2	23.0	20.7	20.05	— 2.62	.089	.112	.092	.093	90	90	82	86	NW	NW	NW	N 42 W	1.6	10.0	11.0	5.89	.53	..	...
4	.820	.857	.968	.8960	16.4	23.9	13.5	18.05	— 4.67	.076	.114	.060	.084	83	90	76	83	W	Calm.	NW	N 53 W	3.0	0.0	5.6	2.0	2.14	...	1.4
5	30.096	30.145	30.167	30.1453	7.3	18.9	9.9	10.95	—11.83	.055	.080	.061	.062	93	79	93	86	NW	N	NW	38 W	2.8	10.0	3.6	3.5	3.60	...	...
6	30.063	29.831	29.620	29.8165	5.5	18.9	9.9	12.68	—10.15	.049	.080	.066	.068	88	79	98	88	NE	E	NE	N 37 E	7.4	17.6	14.8	9.2	1.02	...	4.0
7	29.548	.678	.906	.7375	13.1	19.2	14.2	14.78	— 8.12	.073	.083	.065	.070	94	80	78	82	NE	NE	N	N 37 E	13.8	5.6	4.0	7.7	7.99	...	5.2
8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	Calm.	Calm.	S 23 W	0.0	0.0	0.0	0.0	0.04	...	...
9	.725	.611	.639	.6565	7.7	26.1	20.7	19.85	— 3.18	.056	.116	.092	.094	93	82	82	86	Calm	Calm.	NW	N 52 W	0.0	0.0	3.0	1.90	2.00	...	0.2
10	.643	.483	.491	.5352	20.0	24.7	12.4	18.23	— 4.83	.099	.092	.066	.084	92	70	88	84	W	SW	Calm.	S 70 W	0.6	5.4	0.0	3.01	3.25	...	0.1
11	.499	.525	.623	.5575	19.2	24.3	10.6	17.00	— 6.17	.095	.082	.065	.079	92	64	91	83	NW	W	N	S 51 W	5.5	13.5	6.2	4.54	5.44	...	0.1
12	.586	.424	.282	.4035	13.5	30.1	36.6	28.92	+ 5.67	.072	.142	.205	.150	91	84	94	89	NE	E	E	N 84 E	5.0	16.4	1.8	9.2	9.92	0.010	...
13	.142	.121	.252	.1852	38.0	40.3	34.4	37.15	+13.83	.224	.218	.129	.201	98	87	64	89	S	SW	NW	S 52 W	3.5	4.4	20.0	3.8	7.81	.450	0.2
14	.680	.812	.809	.7780	22.5	30.4	26.5	26.52	+ 3.12	.104	.110	.106	.106	86	65	73	74	W	SW	Calm.	N 89 W	14.4	7.8	0.0	9.4	11.13	...	0.3
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	SE	E	SE	S 49 E	1.6	6.6	2.8	4.27	4.65	...	...
16	.151	.326	.546	.3655	34.4	29.7	23.6	28.92	+ 5.33	.158	.090	.078	.111	79	54	62	68	W	W	NW	N 81 W	13.0	29.6	16.2	17.14	18.05	.050	0.5
17	.774	.872	.934	.8713	16.4	18.1	13.8	16.05	— 7.65	.076	.057	.068	.0[illegible]8	83	57	84	76	N	N	N	N 23 W	7.0	16.0	3.7	11.67	12.09	...	...
18	.937	.935	.835	.8910	9.9	23.2	25.4	20.13	— 3.67	.054	.096	.112	.090	81	77	81	80	NE	E	E	N 84 E	8.0	11.0	15.0	7.0	8.37	...	...
19	.596	.432	.458	.494	30.8	36.2	34.4	34.15	+10.23	.149	.159	.191	.163	86	74	96	82	SE	SW	SW	S 5 W	9.0	13.4	0.5	6.0	7.75	Inap.	...
20	.438	.606	.709	.5948	34.4	36.2	30.1	33.43	+ 9.38	.191	.132	.142	.157	96	63	85	82	Calm	NW	NE	N 32 W	0.0	10.0	7.0	3.9	5.08	.130	..
21	.650	.664	.778	.7092	30.8	32.6	30.1	30.67	+ 6.45	.163	.172	.131	.149	94	93	78	86	NE	N	N	N 17 E	6.0	5.2	12.4	7.44	7.65	...	1.8
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	NE	NE	E	N 53 E	6.0	8.6	12.8	9.4	10.33	...	...
23	.292	.366	.790	.5049	29.7	36.9	26.4	30.4	+ 5.9	.162	.149	.107	.136	98	68	74	80	E	W	W	S 77 W	7.4	36.5	32.0	10.7	7.99	.510	0.1
24	30.099	30.150	30.125	30.1305	17.4	23.6	22.1	21.50	— 3.12	.082	.072	.082	.080	86	56	68	70	NW	W	SW	N 68 W	6.9	10.4	9.5	8.28	9.41	...	...
25	30.018	29.820	29.829	29.8787	18.2	26.1	16.7	19.60	— 5.26	.086	.103	.078	.088	87	73	85	83	N	NE	N	N 9 E	8.1	8.4	12.6	8.31	9.09	...	0.9
26	29.961	.829	.670	.8133	6.2	24.6	24.3	18.43	— 6.57	.052	.100	.116	.088	90	75	89	83	NW	SW	SW	S 73 W	2.0	15.8	12.8	7.8	11.12	...	Inap.
27	.671	.807	.864	.7902	22.1	30.1	19.2	23.92	— 1.25	.109	.135	.088	.198	92	80	85	83	W	NW	Calm	N 75 W	9.0	14.0	0.0	6.66	9.36	...	0.2
28	.774	.746	.720	.7447	27.2	36.2	25.[illegible]	29.28	+ 3.88	.124	.130	.114	.123	84	60	82	77	SW	SW	SW	S 65 W	5.6	4.1	2.2	2.90	3.40	...	...
	29.7068	29.6893	29.7282	29.7109	19.34	27.20	21.95	22.84	— 0.80	.102	.111	.101	.106	90	75	82	82	.....	.....	.....	.....	5.87	10.98	8.23	.....	8.12	1.150	19.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR FEBRUARY, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M, and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.308 at 4 p.m. on 1st. } Monthly range
Lowest Barometer.....29.116 at 8 a.m. on 13th. } 1.192.

Self-registering Thermometer.
- Maximum temperature.....42.0 on 13th. } Monthly range
- Minimum temperature..... 0.4 on 2nd. } 41°6
- Mean maximum temperature.....29°86 } Mean daily range
- Mean minimum temperature.....14°07 } 15°79
- Greatest daily range.....34°7 from a.m. to p.m. of 12th.
- Least daily range..... 4°2 from a.m. to p.m. of 22nd.

Warmest day.....13th; mean temperature 37°15 } Difference=26°20
Coldest day..... 5th; mean temperature 10°95 }

Maximum Radiation
- Solar.....118°0 on 12th. } Monthly range
- Terrestrial.....—7°0 on 5th. } 125°0

Aurora observed on 2 nights, viz: 5th and 14th.

Possible to see aurora on 14 nights; impossible on 14 nights.

Raining on 6 days; depth, 1.150 inches; duration of fall, 26.0 hours.

Snowing on 15 days; depth, 19.1 inches; duration of fall, 94.4 hours.

Mean of cloudiness, 0.74.

WIND.

Resultant direction, N. 24° W.; Resultant velocity, 2.46 miles.

Mean velocity, 8.12 miles per hour.

Maximum velocity, 36.5 miles, from 2 to 3 p.m. of 23rd.

Most windy day, 16th; mean velocity, 18.05 miles per hour.

Least windy day, 8th; mean velocity, 0.04 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 10.98 miles per hour.

Least windy hour, 6 a.m.; mean velocity, 5.87 miles per hour.

First thunder storm of year on 12th.

Fog on 10th, 13th and 19th.

Robins seen, 11th.

COMPARATIVE TABLE FOR FEBRUARY.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		lbs.
1846	20.4	— 2.5	41.9	—16.7	58.6	0	0.000	13	46.1	...	...	0.65
1847	21.5	— 1.4	40.9	0.0	40.9	2	0.550	13	27.3	...	...	0.69
1848	26.6	+ 3.7	46.6	0.0	46.6	4	0.775	8	10.8	N 65 W	2.53	5.69mls.
1849	19.5	+ 3.4	40.6	— 9.8	50.4	2	0.240	13	19.2	N 41 W	1.48	6.58
1850	26.0	+ 3.1	49.6	2.2	47.4	7	1.235	9	23.1	N 80 W	3.48	7.61
1851	27.6	+ 4.7	50.2	2.0	48.2	7	2.600	4	2.4	N 64 W	1.99	6.94
1852	23.4	+ 0.5	41.2	— 6.2	47.4	3	0.650	11	13.0	N 75 W	3.34	6.42
1853	24.1	+ 1.2	43.4	— 1.4	44.8	4	1.030	15	12.6	N 49 W	2.51	7.30
1854	21.1	— 1.8	42.8	—10.8	53.6	5	1.460	15	18.0	N 7 E	1.73	6.91
1855	15.4	— 7.5	39.0	—25.4	64.4	2	1.770	14	21.8	N 40 W	4.34	8.17
1856	15.7	— 7.2	37.8	—18.7	56.5	0	0.000	8	9.7	N 81 W	7.70	10.71
1857	28.5	+ 5.6	52.4	— 5.9	58.3	11	3.050	11	11.7	S 78 W	3.68	9.82
1858	17.0	— 5.9	42.4	— 7.3	49.7	1	Inap.	16	26.7	N 72 W	3.22	9.12
1859	26.0	+ 3.1	46.2	2.1	44.1	6	0.455	14	8.3	N 54 W	2.72	8.50
1860	22.8	— 0.1	50.2	— 8.5	58.7	7	1.330	13	18.8	N 61 W	3.28	8.75
1861	26.1	+ 3.2	46.0	—20.8	66.8	4	0.815	17	29.7	N 77 W	3.86	10.58
1862	22.5	— 0.4	37.8	— 5.2	43.0	3	0.180	17	23.1	N 55½ W	3.93	8.52
1863	22.4	— 0.5	41.5	—19.8	61.3	7	1.450	12	22.0	N 23 W	2.27	10.13
1864	24.3	+ 1.4	45.0	—15.0	60.0	2	0.397	14	9.5	S 84 W	6.48	10.11
1865	22.4	— 0.5	42.2	—10.0	52.2	5	0.810	11	16.8	N 23 W	3.95	8.23
1866	22.5	— 0.4	45.0	— 8.0	53.0	3	0.830	12	16.9	S 80 W	5.14	9.40
1867	28.9	+ 6.0	44.0	0.2	43.8	8	1.328	13	13.4	N 57 W	1.58	8.85
1868	17.2	— 5.7	45.0	—11.5	56.5	1	0.040	16	32.8	N 69 W	3.23	10.84
1869	25.0	+ 2.1	46.0	— 1.0	47.0	2	0.165	19	39.7	N 34 W	4.18	10.04
1870	21.5	— 1.4	40.6	— 6.6	47.2	2	0.520	18	20.1	N 29 W	2.84	8.10
1871	24.3	+ 1.4	48.0	—15.8	63.8	3	0.040	15	23.0	N 70 W	4.26	9.87
1872	20.7	— 2.2	45.2	— 3.6	48.8	5	0.350	9	7.3	N 61 W	3.32	8.93
1873	21.5	— 1.4	43.0	—10.6	53.5	0	0.000	11	10.4	N 68 W	4.29	10.21
1874	22.8	— 0.1	42.0	0.4	41.6	6	1.150	15	19.1	N 24 W	2.46	8.12
Res'lts to 1873.	22.90	.....	44.09	—8.29	52.38	3.91	0.851	12.41	18.63	N 66 W	3.19	8.70
Excess for '74.	— 0.06	.....	— 2.09	+ 8.69	10.78	+ 2.09	+ 0.299	+ 2.59	+ 0.47	...	...	— 0.58

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—MARCH, 1874.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above aver'ge	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
					°	°	°	°	°																			
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	S W	S W	S 55° W	1.6	4.0	7.2	5.41	5.72	...	...
2	29.572	29.477	29.515	29.5173	30.4	43.8	37.3	37.95	+12.15	.153	.190	.203	.184	90	66	91	81	S W	S	S W	S 29 W	2.4	8.6	2.6	5.28	5.44	...	...
3	.493	.266	.035	.2392	34.8	48.5	42.0	41.08	+15.07	.186	.244	.251	.224	92	71	94	87	S W	S E	S W	S 12 W	5.8	7.2	12.5	4.23	4.95	.260	...
4	.120	.484	.725	.4903	32.2	23.2	18.1	23.55	— 2.70	.171	.096	.083	.1[illegible]6	93	78	84	81	N	N W	N	N 25 W	18.8	24.8	13.2	16.98	17.93	.150	0.5
5	.925	30.043	30.017	30.0042	18.2	25.0	25.4	23.27	— 3.25	.085	.089	.111	.093	87	65	81	75	N	E	E	N 81 E	2.0	7.6	11.4	4.76	6.31	...	...
6	.889	29.697	29.508	29.6738	27.2	28.6	31.1	28.92	+ 2.15	.097	.144	.175	.136	65	92	100	84	E	E	N E	N 86 E	24.0	20.5	17.6	20.12	20.27	.120	0.7
7	.250	.113	.148	.1590	33.3	38.0	34.0	35.23	+ 8.23	.170	.212	.163	.179	89	92	83	86	E	Calm.	S W	S 49 E	17.0	0.0	14.4	5.54	14.59	.380	...
8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	W	W	S 86 W	18.3	26.0	31.0	20.29	21.30	...	0.2
9	.404	.439	.515	.4602	22.5	21.8	19.6	20.80	— 6.75	.104	.072	.090	.088	86	63	86	79	N W	N W	N W	N 50 W	23.2	27.0	5.4	24.28	24.45	...	0.3
10	.516	.394	.428	.4450	16.4	25.4	24.6	22.53	— 5.33	.082	.097	.114	.096	89	71	85	79	N W	N W	N W	N 43 W	17.0	19.0	20.6	18.48	18.94	...	0.3
11	.405	.382	.364	.3813	17.4	23.6	19.2	19.77	— 8.37	.082	.059	.069	.067	86	46	60	63	N W	N W	N W	N 61 W	17.0	35.0	30.0	26.29	26.35	...	0.1
12	.261	.295	.416	.3335	15.3	11.5	7.7	10.50	—17.97	.076	.066	.047	.059	87	90	76	84	N W	N W	N W	N 46 W	14.5	13.0	19.8	12.37	14.08	...	0.2
13	.455	.539	.719	.5807	7.0	19.6	17.8	15.17	—13.60	.048	.072	.078	.068	81	68	80	78	N W	N W	N W	N 52 W	18.6	22.0	15.0	16.75	17.07	...	0.1
14	.871	.903	.980	.9278	18.9	32.6	25.0	25.32	— 3.77	.079	.113	.089	.090	77	60	66	65	N W	N W	N	N 38 W	17.0	17.0	5.6	11.71	11.96	...	...
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	E	E	N 75 E	3.4	7.6	8.4	3.96	5.36	...	...
16	.860	.816	.770	.8165	29.7	36.9	35.5	34.75	+ 5.00	.147	.166	.185	.169	89	76	89	84	E	E	E	N 81 E	10.4	13.5	9.6	10.04	10.17	[nap.	...
17	.696	.627	.574	.6293	34.4	38.4	39.1	37.4[illegible]	+ 7.33	.191	.206	.226	.211	96	89	95	94	E	E	E	N 80 E	6.8	4.8	5.0	5.75	5.87	.070	...
18	.533	.482	.432	.4688	39.1	44.9	42.3	41.53	+11.10	.226	.261	.265	.251	95	88	98	96	E	E	N E	N 55 E	1.0	1.5	1.8	1.64	1.88	.130	...
19	.206	.175	.447	.2871	40.2	51.3	34.4	40.82	+10.05	.248	.246	.158	.210	99	65	79	81	E	N W	N W	N 72 W	0.2	30.8	17.6	10.55	12.31	.100	...
20	.586	.623	.614	.6130	29.0	36.2	32.6	32.90	+ 1.78	.140	.116	.142	.126	87	54	76	67	N W	W	S W	N 75 W	8.0	14.0	7.8	7.92	8.86	...	...
21	.490	.435	.446	.4528	34.4	47.0	33.3	38.53	+ 7.07	.144	.141	.120	.136	72	43	62	58	S W	W	N	S 89 W	9.0	22.2	10.9	9.38	12.71	...	...
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S W	N W	N 82 W	4.3	16.6	28.5	13.97	16.52	...	0.2
23	.705	.863	.947	.8562	17.8	16.8	16.0	16.80	—15.38	.072	.034	.057	.051	74	38	62	55	N W	N W	W	N 54 W	22.5	29.5	13.5	26.24	26.54	...	...
24	.987	.952	.805	.9073	12.7	25.0	27.2	22.38	—16.18	.058	.083	.112	.082	75	60	75	66	W	W	S W	N 88 W	9.8	19.6	16.0	13.49	14.62	...	...
25	.698	.544	.546	.5887	28.2	41.2	37.3	35.65	+ 2.72	.136	.136	.195	.150	87	52	87	73	S W	S W	S W	S 51 W	13.0	19.8	6.6	13.69	13.87	[nap.	...
26	.438	.256	.630	.4422	35.5	40.2	24.3	33.68	+ 0.38	.193	.238	.097	.174	93	95	74	86	S W	S W	N W	N 72 W	5.8	5.0	17.7	10.16	11.90	.180	...
27	.727	.598	.570	.6293	19.6	34.0	31.9	2[illegible].47	— 4.22	.079	.101	.136	.1[illegible]3	74	50	75	63	N W	S W	S W	S 77 W	0.4	17.0	7.6	8.16	9.51	...	...
28	.648	.627	.788	.6943	22.5	32.6	21.4	25.85	— 8.20	.104	.092	.077	.097	86	50	68	70	N	W	N W	N 79 W	0.2	24.5	16.8	12.95	14.87	...	...
29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S W	S W	S 56 W	6.4	15.0	[illegible]	9.29	9.72	...	...
30	.548	.548	.678	.6020	27.9	36.3	26.1	30.32	— 4.50	.110	.107	.076	.094	72	40	54	56	S W	W	N	N 52 W	11.1	26.5	11.5	15.64	15.42	...	...
31	.785	.789	.824	.7947	18.1	29.7	19.2	21.32	—13.87	.083	.055	.077	.069	84	34	74	64	N W	N	N	N 11 W	10.5	9.6	11.8	10.36	10.83	...	...
	29.5795	29.5526	29.5939	29.5767	25.49	32.77	27.78	28.67	— 1.30	.126	.132	.131	.127	85	66	79	75	.....	.....	.....	.....	10.32	16.43	13.12	...	13.24	1.390	2.6

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MARCH, 1874

NOTE.—The monthly means do not include Sunday observations The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer..... 30.077 at 7 a.m. on 15th } Monthly range
Lowest Barometer ..... 29.013 at mid on 3rd. } 1.064.

Self registering Ther.
- Maximum temperature .....57°0 on 19th. } Monthly range
- Minimum temperature..... 5°5 on 12th. } 51°5.
- Mean maximum temperature .....37°15. } Mean daily range
- Mean minimum temperature .....21°52. } 15°63
- Greatest daily range.....30°7 from a.m. to p m. of 4th.
- Least daily range..... 6°9 from a.m to p.m. of 17th.

Warmest day .....18th; mean temperature .....41°53' } Difference=31°03.
Coldest day.....12th; mean temperature .....10°50 }

Maximum { Solar .....110°5 on 21st. } Monthly range
Radiation { Terrestrial .....0°2 on 12th. } 110.3.

No Aurora observed

Possible to see Aurora on 17 nights; impossible on 14 nights.

Snowing on 10 days; depth 2.6 inches; duration of fall 34.9 hours.

Raining on 10 days; depth 1.390 inches; duration of fall 40.3 hours.

Mean of cloudiness, 0.68.

WIND.

Resultant direction N. 65° W.; resultant velocity 7.47 miles.

Mean velocity 13.24 miles per hour.

Maximum velocity 37.0 miles, from 4 to 5 p.m. of 11th.

Most windy day 23rd; mean velocity 26.54 miles per hour.

Least windy day 18th; mean velocity 1.88 miles per hour.

Most windy hour 3 p.m.; mean velocity 17.05 miles per hour.

Least windy hour 5 a.m.; mean velocity 9.63 miles per hour.

Lunar haloes 2nd and 5th. Solar halo on 25th.

Fog on 2nd, 17th, 18th, 19th.

Blue birds seen on 18th.

Robins numerous same day.

Bay open on 12th; slightly froze over again; clear by 18th.

COMPARATIVE TABLE FOR MARCH.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1846	33.1	+ 3.8	49.6	8.3	41.3	9	1.965	5	2.3	...	...	0.30 lbs
1847	26.2	— 3.1	43.9	5.6	38.3	5	0.850	6	4.2	...	...	0.71
1848	28.6	— 0.7	58.6	0.0	58.6	5	1.220	6	9.7	N 66 W	2.03	5.80 mls
1849	33.5	+ 4.2	58.0	15.1	37.9	7	1.525	2	2.3	N 3 W	1.48	5.37
1850	29.8	+ 0.5	46.5	7.2	39.3	2	0.745	7	11.2	N 52 W	2.62	7.62
1851	32.4	+ 3.1	59.3	12.0	47.3	3	0.770	9	8.8	N 21 W	1.93	7.65
1852	27.7	— 1.6	44.8	— 7.4	52.2	8	3.080	12	19.5	N 8 W	0.71	5.81
1853	30.6	+ 1.3	56.3	0.0	56.3	6	1.080	8	7.1	N 58 W	2.60	5.96
1854	30.7	+ 1.4	55.1	7.4	47.7	9	2.425	3	2.8	N 53 W	3.39	8.03
1855	28.5	— 0.8	49.4	— 2.9	52.3	5	1.485	11	18.1	N 88 W	4.76	9.95
1856	23.1	— 6.2	41.4	—14.0	55.4	0	0.000	12	16.2	N 71 W	7.68	11.39
1857	27.8	— 1.5	57.6	— 5.5	63.1	4	0.335	15	11.3	N 63 W	6.63	10.84
1858	28.4	— 0.9	55.4	— 5.5	60.9	10	0.917	6	0.2	N 58 W	5.45	8.56
1859	36.3	+ 7.0	54.2	9.8	44.4	15	4.054	8	1.0	N 64 W	1.96	10.39
1860	34.5	+ 5.2	67.0	12.8	54.2	5	0.882	11	2.4	N 64 W	7.61	12.41
1861	26.9	— 2.4	47.4	— 5.2	52.6	8	2.125	14	7.1	N 54 W	4.33	10.56
1862	28.8	— 0.5	43.2	8.0	35.2	8	2.560	11	18.5	N 12 W	2.50	9.38
1863	25.8	— 3.5	42.2	— 4.0	46.2	4	0.687	17	11.4	N 27 W	2.62	9.27
1864	29.1	— 0.2	50.2	3.0	47.2	9	1.620	12	3.7	N 53 W	2.29	8.41
1865	33.6	+ 4.3	55.6	— 3.5	59.1	10	3.050	12	18.9	N 61 W	2.16	8.80
1866	27.6	— 1.7	45.8	7.5	38.3	8	1.915	18	7.2	N 73 W	6.84	11.51
1867	26.6	— 2.7	46.8	3.0	43.8	6	0.617	14	33.4	N 34 W	2.12	8.52
1868	31.3	+ 2.0	59.0	—15.6	74.6	7	2.660	5	4.2	N 21 W	2.12	8.58
1869	23.1	— 6.2	46.8	— 5.4	52.2	3	0.985	9	15.0	N 52 W	2.86	8.02
1870	26.3	— 3.0	44.0	5.2	38.8	2	0.755	18	62.4	N 18 E	4.73	10.13
1871	34.7	+ 5.4	58.5	17.0	41.5	8	2.782	12	13.0	N 31 W	2.59	8.31
1872	19.9	— 9.4	46.4	—10.8	57.2	2	0.700	14	16.3	N 66 W	5.36	10.45
1873	26.6	— 2.7	45.0	— 6.0	51.0	5	1.756	15	25.2	N 61 W	5.91	11.47
1874	28.7	— 0.6	57.0	5.5	51.5	10	1.390	10	2.6	N 65 W	7.47	13.24
Res'lts to 1873.	29.30	...	50.82	1.29	49.53	6.03	1.594	10.29	12.77	N 51 W	3.40	8.97
Excess for '74.	— 0.63	...	+ 6.18	+ 4.21	+ 1.97	+ 3.97	— 0.204	— 0.29	— 10.17	...	..	+ 4.27

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THE CANADIAN JOURNAL.

NEW SERIES.

No. LXXXVI.—AUGUST, 1874.

THE SHEPHERD KINGS OF EGYPT.

[*Continued from page 207.*]

BY JOHN CAMPBELL, M.A.,

Professor of Church History, &c., Presbyterian College, Montreal.

III.—TRACES OF THE ASHCHURITES IN THE TRADITIONS, &c. OF SO-CALLED SEMITIC AND SEMITO-HAMITIC NATIONS.

The Ashchurites belonged first of all to Palestine. This was the first great centre of population after the dispersion from Babel. With Palestine history begins.[1] In that land, embracing both sides of the Jordan and the region extending beyond the borders of Arabia Petraea, I hold that the principal families of the human race were to be found, either a short time before or during the period of Abraham's sojourn there. From Palestine many families went down into Egypt, which was, as I have already stated in a previous paper, the school of the world, and the place in which we are to look for the earliest authentic history of the race. From Egypt many if not all of the historical nations migrated through Arabia or Palestine, on the one hand, to Phœnicia, Syria, Asia Minor, Greece, &c., to Assyria and Babylonia, Armenia, Persia, India and China; or, on the other hand, through Northern Africa to Carthage, Spain, Italy and the islands belonging to it, with other parts of Northern Europe.

[1] I believe the principal reason why Palestine has been disregarded by students of Ancient History and Ethnology, and the track of migrating peoples moved far north of it, is, that the Bible, dealing with the early events which transpired in that land, takes no notice of, or at least refers obscurely to, the important facts of Gentile history, giving almost exclusive attention to the story of the Church.

These migrating peoples carried their traditions with them,—traditions which, most of them, refer obscurely to Egypt and Palestine, but which have been generally supposed to belong to the period of their settlement in the lands which, in the accepted historical period, bore their names and witnessed their more complete and isolated national existence. When, therefore, I find the names of ancient Ashchurites occurring in the mythology or early annals of Persia, Assyria, Greece, &c., I rightly judge that the peoples among whom these traditions are found were emigrants from Egypt and Palestine, and, in most cases, that the stocks from which they sprang descended, at least in part, from him who once gave his name to the town of Tekoa, and exercised sovereignty over Lower Egypt under the name of Usecheres the First. Traces of the family of Ashchur are found in Arabia, Assyria and Babylonia, Phœnicia and parts of Northern Africa. It will be remembered that reminiscences of the Horites also survived in these lands. The Arabians were, as the word used to denote them is translated in Exodus xii. 28, "a mixed multitude," numbering in their tribes representatives of almost every great family of antiquity. It is in Arabia, and not in the region of the Caucasus, that we must find the nearest approach to the conditions of an ancient centre of population. The rulers of Babylonia seem at first to have been of Horite descent, the supreme god Il or Ra being the great deity of the line of Shobal. Those of Assyria, however, were Ashchurite or Shethite. Phœnicia contained a mixture of Horites and Ashchurites, the latter chiefly in the family of Hepher. Carthage and other regions of Northern Africa indicate, in their traditions and geographical names, the presence of the descendants of the sons of Ashchur by Helah.

Arabia.—The name of Ashchur occurs in the earliest annals of Arabia. He is Ashar, or Shar, from whom came the Shariin.[2] This tribe is also called Sachar, and is united with Jasm or Tasm, Wabar and Themud, as one of the oldest Arabian families. The Saracens took their name from Ashar, although many ingenious writers have endeavoured to connect this name with that of Sarah, wife of Abraham. In Arabia Petraea, the land of the Amalekites, and in Arabia Felix, many geographical and other traces of Ashchur are to be found.

[2] For this and many of the following facts in Arabian history, see Russell's Connection, Sale's Koran with Preliminary Discourse, Lenormant and Chevalier's Ancient History of the East, Palgrave's Travels in Central Arabia, &c.

There is little doubt that the tribe of Tasm gives us the descendants of Achuzam and the Azazimeh Arabs of the present day, as far at least as the appellation of the latter is concerned. The Tasm are the Shasu or Amalika of the Egyptian monuments, and in them we find the Hycsos. The names Djasim and Tasm denote the same people, and Hejaz, Kasseem, with similar geographical designations, refer to their ancient settlements. Another name for Achuzam, reminding us of the Achuzzath form, is Azd, of whom came the Amalika and Walid, the shepherd conqueror of Egypt. A remnant of this tribe founded the kingdom of Ghassan, in Syria Damascena. Azd is mentioned in the Koran under the name of Yasin, where he is made the father of Ilyas, whom an endeavour to identify traditional with Scripture characters has transformed into Elias. Himyar, whose true name was Ghazahadj (Achuzzath), is probably the same individual, as will be seen in the Persian connection. He was the first to wear a crown. Among the deities of Arabia some bore names that, from their connection with certain tribes and localities, indicate the presence of ancestor worship in the line of Ashchur. At Nakhla, a name which recalls Nechaliel and similar forms of Jehaleel, the acacia was worshipped under the title of Al Uzza. We are compelled to recognize in this the continuance of that acacia adoration which has been already noted in the Palestinian and Egyptian connections of the family of Ashchur, which entered into the Eleusinian mysteries, and survives in the ritual of modern Freemasonry. Another deity, called Akh-es-Semain, may be Achuzam in fuller form, and may connect with the Athene Gozmoea of the Nabateans. The Khozaites, who were particularly addicted to idolatry, possibly preserved the name of the son of Ashchur who was thus deified. Yauk, the horse, a god of the Beni Murad, whose name at once recalls the Indian Maruts and their Asvin relationships, suggests a connection of Achuzam with the Mered, in the line of Ezra, who married a daughter of Pharaoh. The pilgrimages of the ancient Arabians to Mount Casius present us with another mode of paying homage to their great ancestor, who gave his name to this Egyptian mountain. As Azd, Achuzam has intimate relationship with the Amalekites, and this tribe, in Arabian tradition, is represented as containing within it the Shepherd kings. We shall also find in the Lacedemonian genealogies links to bind Amalek and Achuzam in one. The first mention of the Amalekites is in Genesis xiv. 7, and the only

person of this name who occurs in the Bible is a grandson of Esau. The Arabs, however, persistently call the Philistines by this name. No mention is made of the latter in the account given of the victories of Chedorlaomer, although the region in which Abimelech dwelt might easily have formed part of his line of conquest. The Halaks which lie about Beersheba and south of it are undoubted remains of the *Am*, or people of Lek. We have already seen that the Shasu or Hycsos and the Amalika are made the same. It may be that Achuzam had a son Lek, or, more probably, that in this word an extremely apocopated and altered form of Jehaleleel appears. I find no difficulty in associating the word Chadem, in the Sarbat el Chadem of Arabia Petraea, with the Pharaoh whose brother Hepher or Sephres has left his name upon its monuments. The term Saxon, by which the early Christian writers designated the Arabs, may possibly be another form in which the name of Achuzam descended, although it with other Arabian names and traditions may point to some connection of Jokshan, the son of Abraham by Keturah, with the Ashchurite line. The Katoorah of Arabian tradition are a branch of the Amalika; part of the stock of Midian we have already found in intimate relationship with the Shepherds; and Asshurim of Jokshan betrays the origin of the family. Keturah may have been a daughter of Achuzam, and sister of Jehaleleel. Under the Arabic form of Electra, which is simply Al Keturah, the Greek myth presents her as the mother of Jasion and Dardanus; but as these are Achuzam and Zereth, the sons of Naarah and Helah, this cannot be. She might be their sister, but even this I think hardly probable. The fact of her second son's name being Jokshan, a word not unlike Achuzam, is doubtless the cause of the confusion in the Greek story. The short record of the Midianites which is preserved in the Antiquities of Josephus[3] exhibits them as taking part with the Egyptian Hercules against Antæus, and is quite consistent with the connections already formed for them in this paper, as it is with the Scripture statements that show them to have been the allies of the Moabites, who were united with the line of Sheth. I am not at all sure that Keturah belongs to the family of Naarah. There are many genealogical connections which favour the belief that she was a sister or daughter of Zereth, the son of Helah, one of the most important

[3] Josephi Antiq. i. 15.

of which is the relation existing between Midas (Midian) and Gordius (Zereth) as father and son.

The name of Jehaleleel, the son of Achuzam, survives in the Alilaei of Diodorus,[4] the Beni Halal of Bochart.[5] The name indicates the moon as lord of the night, and appropriately connects with Ashchur or Shachar, the darkness. The deity whom Herodotus assigns appropriately to the Arabs of this family is Alilat.[6] She was a female deity, and was worshipped, like Al Uzza, at Nakhla, which preserves the name in a different form. Kulal is the masculine god, or husband of Ilahat, and is sometimes called Ila. Dhu-Kolosa, Dhu-Kela or Il, represent a solar deity, who is Alvan the son of Shobal, the Dhu being doubtless a form of Div or demon, such being the title of the Horite leaders and princes. Seleyyel, in Central Arabia, must be a reminiscence of the son of Achuzam, who has himself left his memorial in Kasseem close at hand. I have already directed attention to Yasin as Achuzam among historical personages. His son Alyas is Jehaleleel. He is also Wayel, the son of Ghazahadj or Himyar, the same individual as Walid, son of Azd, who, at the head of his Amalekites, conquered Egypt, the latter form of his name giving the Alitis or Salatis of the Shepherds. Another Arabian name connecting with Jehaleleel is Mahlayel, called a son of Aram of Shem, the Aram being an interpolation, and the Shem a form of Achuzam, inasmuch as he also is made an Amalekite. We shall find in Persian history, which has necessarily much of Arabian tradition mingled with it, this name of Mahlayel or Mahaleleel reappearing as a form of Jehaleleel.

The eldest and principal son of Jehaleleel is Ziph. The region known as Tayf or Djouf, where Allat was worshipped, and which connects geographically with Seleyyel, Kasseem, Kheybar and similar Ashchurite names, with the divinities Uzza and Nakhla, commemorates him. He, and not Achumai son of Jachath, the Horite (whom I, by a somewhat natural mistake, identified with Cheops or Kufu), is the Kabus who follows Al Walid or Salatis. He is also Kabiya, the son of Mahlayel, from a child of whom Yathreb obtained its name. Yembua in Hejaz retains the memory of his nephew Anub, who is the Yanbu Shadh of Arab story; the Cush of Ham, who appears in connection with him, being really Coz of Ammon. This Anub is the Nabit of Dimeshki, whose ancestry is thus given. He

[4] Diod. Sic. iii, 22. [5] Phaleg. ii. 19. [6] Herodot. iii. 8.

is also the Nabat, son of Koud, of Mohammed Mustapha. While upon the line of Coz, I may state that Harum appears in the Nabathean Agriculture as Armisa, being there associated with one Aghathadimun, who is Achuzam, the eldest son of Ashchur. The Greek Agathodæmon is as much a true rendering of the original as is the "Petticoat Jack" of sailors, of the Acadian French "Petit Codiac." The Greeks found it necessary to give in their own language the etymology of all names, geographical and personal, whether these belonged to Hellas or to the Barbarian. The Yathreb who descended from Kabiya of Mahlayel, according to Arab tradition, must be Thriphis, the Egyptian goddess, said to be united with Khem, who gave her name to Athribis in the Delta.

Hepher, the second son of Ashchur, is represented by the region of Kheybar in Hejaz, which, like Yathreb in the same province, was founded by the Amalekites. From him also came the tribe Wabar, belonging to the same stock as the families already mentioned. Japhar, the Arabian monarch who follows Sacsac, might be Hepher after Achuzam, or Epher the Midianite after Jokshan. The first supposition is the most natural, although the order in which their names appear would agree better with the latter. My sources of information are too few to enable me to speak decidedly in regard to the descendants of this monarch, as their traces are found in Arabia and its history. I am in doubt whether in Monat, who was worshipped at Codayd, we have the names of Chathath and Meonothai in the line of Kenaz, or of Jachath and Manahath the Horites.

Temeni survives in the Thimanei of Pliny, and the Buthemanei of Agatharchides, the Beni Temim of the Arabian geographers.[7] They inhabited a great portion of Central Arabia, and seem to have included the Temanites who descended from Eliphaz the son of Esau.

Achashtari was no less celebrated among the tribes of the desert than among those of the Nile Valley. As Athtor, he answers to the Chaldean Ishtar and the Ashtar or Sheth of the Shepherds. His name likewise remained in the title of the planet Jupiter, Al Moshtari, in which we recognize the head of the Mestraei. The Sabians worshipped him under his abbreviated name, Seth, reverencing the Egyptian pyramids of Gizeh as the tombs of this patriarch and his sons Enoch and Sabi, the latter being the same as Sabus son of Idris, and, I think, the Jabez of Chronicles. Seth is also represented

[7] Genesis Elucidated, by J. J. W. Jervis, A.B., London, 1852; page 393.

as at war with the Deevs of Kabil, in whom we have little difficulty in seeing the Horite line of Shobal, and the Devas of Siva. He is said to have married Noraea, who is really Naarah his mother.[8]

The sons of Helah are not unrepresented in the geography and traditions of Arabia, but I do not venture at present to trace them. I may state, in concluding this sketch of the Arabian connections of the family of Ashchur, that he is himself the god called Nasr, the Mizor of Sanchoniatho and the Nisroch of Assyria, who is made the same with Asshur; and that the Harut and Marut of the Koran are the Jered and Mered of 1 Chron. iv. 17, 18, whence came the Indian Rudras and Maruts, and the Arabian families of Hareth and Murad.

Assyria and Babylonia.[9]—The great god of Assyria was Asshur, by many identified with the son of Shem, who, according to the Scripture account, founded an empire about Nineveh. I receive implicitly the record of the tenth chapter of Genesis, but, at the same time, feel no hesitation in stating that the Assyrian god was not the son of Shem, but the father of Tekoa. According to Damascius, Assoros and Missare were the first pair in the Babylonian cosmogony or theogony. Missare is the same as Naarah or Nagarah, *ayin* being in this case represented by *s*, as in the Latin. The children of these deities were Anos, Illinos and Aos. Anos is Onam, and Illinos Alvan of the family of Shobal, but Aos is Achuzam. It is this Aos, in the forms of As and Khi, who has been taken to represent Asshur; Ashit, a name supposed also to belong to the god, being his son Achashtari or Sheth. Before Assoros and Missare, Damascius gives two elementary principles, Dache and Dachos. He also makes Dauke the wife of Aos. In these words I believe Tekoa lies. I do not imagine that Ashchur ruled in Assyria, but that some of his descendants were immigrants into that land, and carried with them the name of their great ancestor some time after their expulsion from Egypt. I thus agree entirely with Sir Henry Rawlinson in his statement that "the human intellect first germinated on the Nile, and that then there was, at a later age, a reflux of civilization from the Nile back to Asia." The early Asiatic civilization, however, was un-

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[9] For the facts recorded under this head I refer to the works of Layard, Rawlinson, &c., upon the monuments of Assyria and Babylonia, as well as to the chapters written by Sir Henry Rawlinson for Professor Rawlinson's Herodotus, and the popular manuals of Bonomi and Lenormant and Chevalier.

[8] Baring Gould's Legends of Old Testament Characters, 67.

historical and hardly worthy of the name, so that this reflux actually marks the beginning of true Asiatic civilization. Although Ashchur was the god of Assyria, the country was known by the name of the son of Shem, at least to the sacred writers. Yet it is well to observe two passages of Scripture in which Asshur and Moab are united, showing that the old Shethite alliances still subsisted after the family of Ashchur had removed to the east. These passages are Numbers xxiv. 17, 22, 24; Psalm lxxxiii. 8. Names which clearly present the distinction between the words Asshur and Ashchur are Sacchoris and Shagaraktiyach. The first of these is a Babylonian king mentioned by Aelian, who was the grandfather of Tilgamus, another monarch of the same country.[10] The second is one of the recently deciphered names of Babylonian sovereigns who, at Sippara, where Xisuthrus laid up the memorials of his flood, built a temple. Kiprat Arba, the four races, as it is supposed, are connected with Shagaraktiyach and his family. It is hard not to find Kirjath Arba here, in relation to the father of the four sons of Naarah. I have already mentioned the Bushur Asshur of Assyria as presenting a name not unlike the Egyptian Busiris. The descendants of Ashchur certainly did reign in Assyria, which sustained a somewhat similar relation to Babylonia to that which the Shepherds sustained towards the Horite line in Egypt. It is instructive to read the series of Ashchurite names which Sir Henry Rawlinson has found in the inscription upon the black obelisk which stood in the centre of the mound at Nimroud. In Temen-bar, whose inscription it is, we have a reminiscence of Temeni or Timan-hor. He adores Assarac (Ashchur), Husi (Achuzam), and Set (Sheth), and calls himself King of Zahiri (Zohar).

Achuzam I have already identified with Aos, who is the same as the Husi of Assyria and the Hea of other monuments. Taauth, we learn, was the female reproduction of Ao, and in her name the Egyptian Thoth or Athothes, whom we have found to be Achuzam, again appears. The character and functions of this god agree in every respect with those of the Egyptian deity. He is the ruler of the abyss, the king of rivers, the regulator of aqueducts or it may be of drainage, the serpent, the source of all knowledge and science. In a form similar to that which appears in the words Dioscuri and Tasm, he is presented to us as Dhizan or Desanaus, confirmation of the

[10] Aeliani de Animal. xii. 21.

identification being found in his alliance with Satrun or Achashtari, the founder of Sethrum. The Babylonian town of Is, now Hit, is one of his memorials, but I believe that the Assyrian region of Chazene furnishes us with another more perfect in form. I have not found any ancestral monarch either of Babylonia or of Assyria whom I can with any confidence connect with Achuzam. Many facts point him out as the father of Jehaleleel, under the name of Aos or Hea. He is termed the god of Khalkha, and his son appears as Khalkhalla, the brother of lightning, a name that shows intimate connections with the Roman Jupiter Elicius. This son is the Bel or Belus whom the Greek writers attributed to Aos and Dauke. Names like Ivalush may have arisen from that of the son of Achuzam. With the god who is called Khalkhalla the epithet Thibbi is connected. Sir Henry Rawlinson seems to identify this title with the Persian Giv and the Hebrew Zif. I do not doubt that it represents Ziph, the son of Jehaleleel, who may also have given name to Zop, the abyss, of which Hea was the chief. In the Persian Thura, associated with the Assyrian Thibbi, we may find Tiria brother of Ziph. Asareel is very like the later forms, Asshur-rish-ili, &c., among the monarchs of Assyria. Ninip, who is called the son of Bel and also of Aos his father, and who has moreover the titles Khalkhalla and Thibbi, must be Anub the son of Ziphah, the daughter of Jehaleleel, the son of Achuzam. Nabu or Nebo, also denominated son of Aos or Hea, may be the same person, or he may be Nebaioth, the son of Ishmael and head of the Nabateans. I think that the former supposition is the most probable. Intimately related to Ninip is Nergal, the god of Cutha, who is plainly Acharchel, his designation of "the great brother" coinciding with the meaning of the word in Hebrew. Armannu, the tutelar god of Susa, may be his father Harum, although he is more probably Naram Sin, who, like Shagaraktiyach, of whom he is made the son, is lord of Kiprat Arba. The name Arba survives in Arabas, whom Pliny makes son of Babylon and Apollo, and the inventor of medicine.

I think it possible that Nipru, generally considered to be a form of Nimrod, may, following the analogy of Nergal and Nisroch, be Hepher, the second son of Ashchur. The temple of Kharris Nipru reminds us of the Nephercheres of the Egyptian lists. His name was certainly bestowed upon Sippara, in which Xisuthrus laid up the ancient records. Agana as a name of Sippara is doubtless a reminis-

cence of Kenaz, son of Hepher. Hepher's name also survived in the Chaboras or Aborras, which recall the Egyptian Chabrias and Avaris.

Temeni I have already connected with the historical name Temen-bar. In him also we must find the ancestor of the Thamanei, who dwelt near the Carduchi in Assyria.

Xisuthrus is Achashtari and Sheth and Sesostris, as I have already indicated. The form of his name presents the original, with the simple absence of the letter *A*, which seems prosthetic. The story of the flood, the pillars or records at Sippara, the connection with Shagaraktiyach, who is sometimes taken for him, and other facts clearly establish his identity. He is the Sisit of Mr. George Smith's cuneiform inscription describing the Deluge, and the Ashit whose name at times is taken to be a mere variation of that of Asshur. As Sethos he appears, or a reminiscence of him, in the old list of Assyro-Babylonian kings. We have likewise found him, as Satrun, in company with Dhizan. In the inscription on the black obelisk of Nimroud already alluded to, he is called Set. As we have seen that Sesortasen I. intimately connects with Onnos, the Egyptian king of On or Heliopolis, so Xisuthrus appears as a successor of Oannes, whom, in my paper on the Horites, I identified with Onnos and Onam, the son of Shobal. This accounts for the frequent mention of Anu or Oannes along with members of the Ashchurite family. It need not be matter of surprise to discover the Shepherd line in Assyria, inasmuch as Nineveh and Heth are united on the monuments of the 18th Egyptian dynasty, where the enemies of that line are mentioned. With Achashtari I have already united Ashtoreth and the Arabian Athtoret. I cannot doubt that in the latter names we have the Ishtar of the countries under consideration, and the wife or daughter of Achashtari. She is moreover called Nana, and is mentioned together with Anu or Oannes, so that it would appear as if Achashtari really married a daughter of Onam or Onnos as well as Hepher. This is strengthened by many facts in geography, mythology, &c. At Ashtaroth Karnaim, we learn from the Apocrypha, the goddess worshipped was Derceto or Atargatis,[11] who, as the fish goddess, connects with Anu, Oannes or Dagon the fish god, the An or Onnos of Egypt, whose symbol was a fish. She belonged to Ascalon, a Philistine city originally, and there it is said that she became the mother of Semiramis by Caystrus. Caystrus is a very

[11] II. Maccab. xii. 26.

complete form of Achashtari. The children of Xisuthrus, according to Berosus, were Zervan, Titan and Japetosthes. The last of these is Jabez, who comes several generations after Achashtari, yet seems to be related to him in some way which I have not yet discovered. Zervan is the same word as Zirpanit, a name connected with Nana and the epithet Serbonian, applied to the bog or marsh of Lower Egypt near Casius, Avaris and Sethrum. Zirpanit also is made the wife of Bel, the son of Aos and Dauke, whom we have seen to be probably the same as Jehalcleel. El Khalil, the name of the temple of Nana at Borsippa, seems also to indicate that she was the wife of Jehaleleel. Her name is lunar in its associations, like that of the son of Achuzam, and the geographical connection indicated favours this relation. It is also confirmed, as we shall see, in the Greek mythology, which presents her under the name Proserpine as the wife of Pluto. The Italian legend of Kasutru and Paltuce warring with Kaluchasu is a reproduction of the Babylonian, in which Titan and Japetosthes oppose Zervan.[12] In either case a sister interferes,—Turan in the former, Astlich in the latter. Kasutru of the Etruscan myth is Caystrus, Achashtari and Xisuthrus. Kaluchasu might be Jehaleleel, but Paltuce resembles the forms Balot, Philitis and Pluto, under which he has been found. Nothing could be more natural than the marriage of a son of Achuzam to a daughter of the house of Achashtari. In Vara and Bel Vara we may find Beor and Bela his son, as Baal Peor or Belphegor.

The sons of Helah are not without their record in Assyria and Babylonia. The Carduchi, Gordyeans or Kurds, in whose territory Xisuthrus is said to have landed, are the Cherethites, whom we have already derived from Zereth. Zaretis, a name of Astarte, likewise connects him with the family of Ashchur in the east. Strabo informs us that the Gordyeans derived their name from Gordys, son of Triptolemus.[13] The latter word is a form of Dar Bethlehem, and is connected with Gordys or Zereth, because, as I shall show when I come to treat of the line of Salma, father of Bethlehem (1 Chron. ii. 51), Helah, the mother of Zereth and wife of Ashchur, belonged to that family.

The name of Zochar survived in the Zagras mount and river of Assyria as well as in Zahiri, an ancient appellation of the same country. He may also be represented by Zikar Sin, one of the oldest monarchs of Chaldea.

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[12] Guigniaut, ii. 1082. [13] Strabon. Geog. xvi. 1, 25.

Yetnan, the land sacred to Husi, a name afterwards transferred to Cyprus, gives a probable Assyrian notice of Ethnan, the youngest son of Helah. Such forms as Asshur-dayan can provisionally be regarded as arising from a combination of his name with that of his father.

Assyria, Mesopotamia and even Babylonia are full of geographical names which refer to Ashchur and his family, such as Sekherieh (Ashchur), Satra (Achashtari), Alalalis (Jehaleleel), Masius (Mesha, father of Ziph), Zab and Sapha (Ziph), Zagora (Zochar), which go far to prove that these lands were once held, at least in part, by the descendants of the father of Tekoa.

Phœnicia, Carthage, &c.[14]—We have already had before us Isiris or Mizor, who was the father of Taautus according to Sanchoniatho. He is also the Chusorus, whom Mochus makes the first ruler of the world. The Dioscuri, who went to sea at Mt. Casius, are the Ashchuri. Aser, the Punic god, is the same person, as are perhaps Macer, the Punic Hercules, and Bochoris, the deity of the Moors. Utica is a form of Tekoa. Sydyk and Typhon belong to the line of Mizor. The Assyrian lake, which was the home of the family before it was transferred to Phœnicia, was, as Kenrick and others have clearly shown, the Dead Sea, the region about which is unmistakably the scene of Sanchoniatho's history. In Tyndaris of Marmarica we find a settlement of those Tyndaridæ, who first dwelt in the Egyptian Tentyra, of which Peschir Teuthur was the god.

Achuzam has been already identified with Taautus. As such he is Esmun and Casmillus, names which approach more closely to the original. He rightly connects with the Cabiri, named after his brother Hepher, as well as with the Dioscuri, bearing his father's name. He may be Sanchoniatho's Usous or Moloch Mars, answering to the Arab Ais, who is Dhu el Karnaim—a title, however, which I believe belongs to his brother Achashtari, lord of Ashtaroth Karnaim. The Phœnician name Ashmunazar unites him with his father, and answers in form to Zereth-Shachar. Casius, whence the Dioscuri went to sea, has already been shown to be a corruption or partial rendering of the name of Achuzam, who is also commemorated by the Ahsi, Axius or Typhon river, and the adjoining region of

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[14] For the facts recorded under this head see Kenrick's Phœnicia, Movers' Die Phœnizier, Davies' Carthage, Fragments of Sanchoniatho, &c.

Cassiotis in Syria. Movers rightly holds that the Hycsos passed along the north of Africa and became Numidians and Mauretanians. Besides Usous and Taautus, Sanchoniatho mentions a Cassius, who named the Egyptian mountain, and in whom we must also find a tradition of Achuzam. Sousim, the sacred horses of the Carthaginians, derive their divinity from the same connection.

Hepher is probably Hypsuranius, the brother of Usous according to Sanchoniatho. He is also the lord of the Cabiri. Cinyras, Adonis and similar names commemorate his descendants in the line of Kenaz and Othniel, and many localities in Phœnicia preserve his memory. Timan or Mas Timan, a god of the Moors, like Temen-bar and Timan-hor, at once refers us to Temeni.

Achashtari still appears the most famous of the sons of Ashchur. In the Phœnician theogony he is Sydyk—not Mizor, as Guigniaut has supposed, but the principal son of Mizor. He is the head of the Shethite line of Egypt, who worshipped the god Soutech. Sanchoniatho gives him Asclepius for a son. I do not know who this is. It may be Chelub the brother of Shuah, or, as probably, finding Asclepius in Esmun, the Shimon of 1 Chron. iv. 20. I need not apologize for the well-known connection of the names Caleb and Æsculapius. The maritime associations of Sydyk accord strikingly with the story of Usous as the first to venture out to sea, although I believe it is among the sons of Helah, the Shairetaan and Tocchari, that we must look for the earliest navigators, rather than to Achashtari and Achuzam, whom these names represent. Still, as we have in part seen, and shall yet see more fully, the name of Achashtari is generally associated with the first ship, and with the deluge which rendered it necessary. Xisuthrus, Satyavrata, Tashter and Sadurn unite the Babylonian, Indian, Persian and Celtic legends with the Phœnician in this respect, and the fleet of Sesostris is a remnant of the same story. The Cassiterides or tin islands derived their name first of all from the Phœnician deity, although the Greeks applied the same term to iron, in the form *sideros*. Tysdrus, in the Roman province of Africa, is a word like Tashter and Tvashtar, commemorating the same son of Ashchur. The two-horned Astarte of the Phœnicians is plainly the Ashteroth Karnaim, which we have already more than once connected with Achashtari.

Zereth is the chief of the Punic divinities. Movers connects Zerinthia and Zaretis with Zohar or Zorus of Carthage, and Guig-

niaut with Astarte. This is the old union of Zereth and Zohar, or of the Shairetaan and Tocchari, who are further combined as the Zorus and Carchedon who founded the famous African city. Zereth is Melcartus, the Certos or Curudes of Egypt. Besides Carchedon he is called Sardon, and is the son of Aser, being united in many cases with the Sousim, who are of his brother Achuzam. In these two names we find a reproduction of the Hebrew and Egyptian designations of the sons of Zereth, Cherethites and Shairetaan, Cretes and Sardinians. The union of Melcartus and Astarte, and the parentage which Cicero gives the former as a son of Jupiter and Asteria,[15] serve to point out his relationship with the line to which Achashtari belonged. From Zereth came the African word Syrtis (coast of the Cherethites) and the name Tritonis, so extensively applied in Libya, where Auseans (Achuzam) and the Cinyps (Anub) region are found. The many uses of the root *Trit*, as it appears in the Sanskrit and other languages, agree with its derivation from this historical personage. We shall never find the true science of language until we learn that it is an historical and not a natural science. Triton, the trumpeter, is an application of the meaning of the word Tekoa, a blast with a trumpet. A similar application we find in the Egyptian law which forbade the sounding of a trumpet in certain districts because of its association with the braying of the ass of Sheth or Typhon. With Sardon, Iolaus is connected, and this, with similar historical facts, has made me question whether Jehaleleel, who is plainly this Iolaus, was the son of Achuzam or of Zereth.

Zohar is the Phœnician Hercules. He and Carchedon founded Carthage, and from him Tauchira of Cyrene derived its name. Tunes and Tanit the goddess may commemorate Ethnan. The geography of North Africa is altogether on the side of an Ashchurite migration along its coast. Assures and Tisurus, Tiges and Tigisis, Auzea, Igilgilis, Sibus and Sufes, Yabar, Zarytus, Thenae, Aggorsel, with many similar names, recall Ashchur, Tekoa, Achuzam, Jehaleleel, Ziph, Hepher, Zereth, Ethnan, Acharchel, &c. The Tangier inscription cited by Procopius, which describes the people of that region as refugees from lands in Palestine which had fallen before the arms of Joshua, is not necessarily a myth, although I by no means assert its substantial character. The origin which the Moors gave themselves as the descendants of the Sabeans of Arabia and of the sons of Abra-

[15] Ciceron. de Nat. Deor. iii. 16.

ham by Keturah, is not at all at variance with an Ashchurite connection, inasmuch as we have found these families in union with that of the father of Tekoa.

Branches of the same great stock, starting from the Delta of Egypt, passed, the one westward at first and then north, along the African coast of the Mediterranean to Sardinia and Sicily, Spain, Gaul, Italy, &c.; the other eastward and north, along the sea coast of Palestine, Phœnicia and Syria to Asia Minor, Thrace, Greece and more northern lands; while a vigorous offshoot, passing to the east of Jordan, occupied successively Babylonia, Mesopotamia, Armenia, Assyria, Persia, India, and even China. Although we have found traces of the Ashchurites among peoples nominally Semitic or Semito-Hamitic, we are not to suppose that these were anything but Japhetic tribes.

IV.—TRACES OF THE ASHCHURITES IN THE TRADITIONS, &c. OF THE ORIENTAL NATIONS OF THE INDO-EUROPEAN STOCK.

Persia, India, Armenia, the countries about Caucasus, and the nations of Asia Minor, contribute to our knowledge of the remarkable family under consideration. I do not mean to assert that all the populations of these lands were Ashchurite. This would be to people the greater part of the world from the town of Tekoa. The Ashchurites, like the Horites, were a ruling class. At first their domination extended to Canaanite tribes of Hittites and others, afterwards to subject Mizraites, then to Arabian and Assyrian Cushites and Asshurites. With the exception of the Israelites, the Semitic races possessed little or no history, and the Hamites after Nimrod had none at all. The same may be predicated of many of the Japhetic families. It is, however, among the latter that we find the makers and transmitters of history. It was given to a few of them to exercise authority over their fellows, and, over a large portion of the earth, through many generations, to be kings of men. The three great families of royal men were and are those of Jerahmeel, Hor and Ashchur, and of these that of Ashchur has ever been incomparably the greatest. In many lands these families dwelt together, sometimes in peace, oftener in conflict, so that no history can be complete without some account of all three. The Horites I have in part already treated of; the Ashchurites I am now engaged upon; and the Jerahmeelites I hope soon to be able to introduce to the student of historical antiquities. I do not therefore profess by means of

Ashchurite connections alone to make plain the entire early history of the peoples among whom traces of this family are found. This paper is thus merely a contribution to the history of early civilization and the settlement of nations.

PERSIA.[16]—The history of Persia is the history of at least two ruling races. The Achaemenian family, as I have shown in a former paper, was purely Horite, and this fact misled me in regard to the parentage of earlier monarchs whose names have a place in the Persian records. Thus, while properly identifying Gilshah with Abimelech king of Gerar, I committed the grave error of making a Philistine ruler a son of Shobal the Horite. I was, for the same reason, tempted to find in Ormuzd an ancient Horus. It has been well proved that Ahura Mazda is the Sanskrit Asura or head of the Ashchurites; the Devs, who are of Siva or Shobal, being the evil spirits of his reign. The region in which Ormuzd or Ahura Mazda dwelt was Sakhter, an Ashchurite word. Nanaia was his daughter, and Zerouane Akherene connects with him. Now Nanaia is the Babylonian Nana or Ishtar, the Asura, who had a fane at Asshur, and the Greek Nana, daughter of Sangarius (Saggarios or Ashchur, the Sinkharib of the Mohammedan writers), who connects with Proserpine and Zirbanit, and with Saranyu, daughter of Tvashtar, in the Indian mythology. Zerouane is the Zervan given as son of Xisuthrus, and Akherene relates to Ashtaroth Karnaim, a word in which we discover a union of Saturn and Kronos. Oxyartes of Bactria, whose name Hyde makes Achshur, is very probably the father of Tekoa or Taoce, with which Dahak may have connections. Meshia and Meshiane, the first Persian pair, may probably represent the Scandinavian Ask and Embla, the former of whom is unmistakeably Ashchur, while the Ribas tree out of which they came brings in the line of Arba. Sapandomad, united with them, being as a month the equivalent of the Assyrian and Hebrew Sivan, seems to point to Ziph or Typhon. Meshia might give Mesha, the father of Ziph, whose relations are not yet clearly established. Zohak or Ashdahak, whose name and Tasi relationships indicate Ashchurite connection, is nevertheless a son of Ulvanus or Alvan the Horite, and must, I think, be Jachath.

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[16] For the facts recorded under this head, see the Shah Nameh, Dabistan, Chronicle of Mirkhond, Hyde's Religio Veterum Persarum, with the Manuals referred to above; Russell's Connection, by Wheeler; and the Supplementary Chapters in Rawlinson's Herodotus.

Achuzam is geographically represented by the Cossaei of Chuz or Susiana, of which at one time a certain Alias was king, and in the north-east by the region of Oxiana, the Asoa which the Chronicon Paschale affirms was colonized from Egypt.[17] The Ghizneh of the Shah Nameh is the same as Ghizeh of Egypt and Ghassan of Syria, and perhaps the Philistine Gaza. The Euacae or Persian cavalry of Arrian[18] connect with the Arabian horse deity Yauk, the Indian Yakshas, the Punic Susim and the Egyptian Hycsos. The River Oxus at once recalls the Axius or Typhon of Syria and many similar names of streams in different parts of Europe, Asia and Africa. I cannot doubt that Ogyges, Oceanus and like terms, which have been associated with these names, originated with the eldest son of Ashchur. Poseidon, the god of the horse and of the sea, will yet appear as a member of the Tekoaite family. Among historical personages, Achuzam is Yessun Ajam, one of the earliest Persian monarchs. He founded the Yassanian dynasty, and his son and successor was Gilshah, who was called Ubul Muluk or Abimelech. He is Jehaleleel and Abimelech king of Gerar. His Ashchurite descent appears from his styling himself Uboo-Busheer, the latter word giving us back Busiris and the Bushur of Bushur Asshur. He was the inveterate enemy of the Devs or Horites of Shobal. Confirmation of the identity of Gilshah and Jehaleleel is found in the tradition given by Mirkhond, that his successor Houcheng was Mahalaleel, and in the statement of Tabari that Gilshah was the son of the same antediluvian. The truth lies between the two, Gilshah being, as Jehaleleel, this same Mahalaleel, the son of Achuzam or Yessun Ajam. An important point in history is given us in this identification, taken along with the fact that Ephron, the son of Zohar, ruled in Hebron or Kirjath Arba at the same period in the life of Abraham. We learn that Salatis, prior to his invasion of Egypt, was the contemporary of the Hebrew patriarch, and that the dawn of history commences some two generations earlier. The names Kaiomers and Hamyer, so often applied to this monarch, I have not been able to identify with any title borne by him, but I believe that their application in his case and that of his father is due to the same cause as that which gives us Electra for the mother of Jasion and Dardanus, or Achuzam and Zereth. Jokshan and Achuzam, as language became

[17] Galloway. Egypt's Record of Time to the Exodus of Israel, 221.

[18] Arriani Anab. Alex. vii. 6, 3.

corrupted, were confused; and Zimran, the elder brother of Jokshan, who was the head of the Cymri, Smyrneans, Homeritae, &c., and a great prince in his day, was confounded, in like manner, with Jehaleleel and Achuzam, who were, probably, his uncle and grandfather. The Persians, as Cephenes, doubtless descended in part from Ziph or Cepheus, and the name of this son of Jehaleleel survives in those of the desert of Khiva and the Caspian Sea, with many more in other parts of the Persian Empire.

Of Hepher and his son Kenaz the names of Pecheng and Aphersiab may possibly be an inversion. The dynasty of the Ashkanees should belong to this line, and the Gabrs or fire worshippers might easily have taken their title from the head of a family noted for its devotion to the sun's disc. Khafr, in the province of Fars, must be a memorial of this son of Ashchur, and the old kingdom of Khawer, so often mentioned in the Shah Nameh and other records of ancient times, doubtless took its name from him long before it was given to Cyprus. His descendants in the line of Seraiah were the Chorasmii, or people of Chorassan, who in many ways may be proved to be the progeny of Joab, the father of the valley of the Charashim. To follow such investigations at length, however, would swell this paper to a large volume, without materially increasing the evidence for the Ashchurite connection of the Shepherd kings.

Temeni survives in Persian story as the giant Temendous or Temendonus with a hundred arms, whom Gilshah defeated and drove to Oman. This at once recalls the Arabian Thimanei. The fable of the Centimani we shall yet find to be intimately connected with the legends of the Ashchurites, the very Greek word *hekaton* coming from Achuzam, he being the original Aegaeon to whom is sometimes given the name of Briareus, which is an Egyptian form of Jehaleleel.

We have already seen that the very word Achashtari is Persian, and denotes royalty in that language. Kisdar, Hashterkhan and Asterabad are names of places derived from it. Tashter is the mythological personage who represents the youngest son of Naarah. In the Bundehesch his story is that of Xisuthrus, and he is the son of Ahura Mazda. The Typhonian connections of Zohak and his relations to the Ceto or Dercetides (Hittites and Ashterathites) make it difficult to exclude him from the family of Ashchur, and in particular from that of Achashtari. Yet I cannot see my way to disjoin him from the Horite stock or dissociate his name from that of

Jachath, who, as Ichthys, is still son of Atargatis. In Zereth we may probably find the Zoroaster king of the Bactrians, who lived in the time of Ninus and Sesostris, or Onam and Achashtari. Even the later Zoroaster, who reformed the Persian religion, from the names of his ancestors, seems to have had Ashchurite relationships. The word Zareth Shahar sufficiently shows that Oxyartes, whom Hyde, as we have seen, makes Achshur and Zoroaster, may be the same person. I have found no representative of Zohar, but Jay Affram may be his son Ephron. Ethnan may be Tanaus, king of the Scyths, whom Justin makes a contemporary of Sesostris, Ninus and Zoroaster.[19] I have not burdened these pages with geographical names, which a mere glance at the map of Persia, ancient or modern, will reveal as bearing upon them a well-defined Ashchurite stamp. There is great confusion in the Persian annals, and I must leave to those better versed in them the task of identifying the names of the First Book of Chronicles with those of their heroes. Shah Keleev is a Bible Caleb: Menoutchehr is Manahath and perhaps Meonothai, for there are two of this name; Feridun is perhaps Jered or Jordanus; Selm is a reminiscence of Salma, the father of Bethlehem. Ferud and Kai Khosrou, the sons of Siavesek, are Proetus and Acrisius the sons of Abas; and Lohurasp or Aurvadaçpa is the later Horus of Egyptian monarchy. But these do not at present concern the line of Ashchur. Much light has been shed upon early Persian history by Indian mythology on the one hand, and the Arabian records on the other. It also sets forth certain facts, such as the position and relationships of Jehaleleel, more clearly than either of these. It is not to be wondered at that no history or mythology presents us with a complete account of the Ashchurites. This must be made up by a comparison of the different records of historic nations.

India.[20]—Many instances might be given of the original national unity of Indians and Egyptians. With these, however, as set forth by Sir W. Jones, Dr. Pritchard, Sir Gardner Wilkinson and other writers, I presume the reader to be acquainted. The legends

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[19] Justini, Hist. Phil. i. 1, 6.

[20] To save the labour incident upon reference to authority for every fact stated, and the perplexing effect of a large number of notes, I refer the reader to Muir's Ancient Sanskrit Texts, Wilson's Vishnu Purana, Pococke's India in Greece, Hardy's Manual of Buddhism, Guigniaut's Religions de l'Antiquité, with the older works of Crawford, Maurice, Wilford and Sir W. Jones, and the Journal of the Asiatic Society.

relating to the Horites are principally those belonging to Sivaism. Those of Brahminism furnish materials for the history of the line of Jerahmeel. Ashchur's family must be found in those of Vishnavism and Buddhism.

Ashchur himself is Mahi Asura, the great Assur, as Shobal is Maha Deva, the great Dev. He and his Asuras were vanquished by the Devs of Siva and cast down to Onderah or Denderah, whence the name of Tyndaridae, applied by Sanchoniatho to his descendants. Wassakara is a name of his, and Visvakarman—the latter a title generally given to his son Tvashtar or Achashtari. Among monarchs he is Maha Sagara, with a son Makhadewa (Macedo, which we have already found to be a name of Achuzam); or Sagara, with a son Asamanya (Achuzam). The deity Sangara Narayana presents him, together with his wife Naarah, who gives name to Nagara. He appears again as Buddha Soukra, identical with the Egyptian Ptah Soccari. His son Achuzam, however, and not himself, seems to be —I do not say Buddha, because I think Etam his father-in-law was the first to bear that name, but—the second and perhaps the chief of those who aspired to the Buddhaship. Pococke has pointed out the relations of the region of Attock with the Greek Attica. The Egyptian Attikeh, the Carthaginian Utica, and the Palestinian Tekoa all connect with it. The whole of the vast region drained by the Indus and its tributaries is replete with Ashchurite names, which, for brevity's sake, and as I write for scholars, I forbear to enumerate.

Achuzam's great memorial is in this region. With the Asuras the Yakshas are associated. They are the Hyksos. Chasas, Hayakes or Pheakes are names which Pococke gives to the Yakshas. The ancient Acesines was their river, and Cashmere, a later Cassiotis, their home. Achuzam, under the name of Vasu, is said to have ruled there in the time of Satyavrata, his brother Achashtari. His Yakshas moreover were found with the Kinnaras (Cinyrads) of Cuvera (Hepher) at Kailasa, or Alaka (Khulasa or Halak in the Geraritic region). In these names, with that of the Lokaloka mountains, we find corruptions of Jehaleleel. With the Yakshas, the Ashvins must be connected. One of them is Jishnu, who is Achuzam in a form like Yessun or Jasion. The Asvamedha, or horse sacrifice, properly belongs to these so-called Indo-Scyths. It is generally conceded that the Ashvins and the Dioscuri are the same. Achuzam is

plainly the Indian Desanaus of the Greek writers, whose daughter Pandaea at once suggests the Buddhist Pandoos. Vishnou, the god of the water, called Narayana, is another and grander representation of Achuzam, who is probably the chief of the Vaisyas or Vasus, as Vasu of Cashmere, his brother Achashtari being the ancestor of the Kshetriyas, and perhaps of the Sudras. In the Vayu Purana, Vishnou ranks next to Iswara. He rides upon the eagle Garura and on the serpent Sesha. The former is Gerar, and a form of Jehaleleel, and the latter is Achuzam himself. Moudevi, a wife of Vishnou, rides upon an ass like Hestia, and this is the ass of Sheth or Typhon. He opposes Siva and his phallus worship. The relation of Vishnou, however, which first led me to associate his name with that of Achuzam, is that of the husband of Lakshmi or Sri, who is Ceres the wife of Jasion, the sister of Jezreel or *the sown.* I confess, however, that the fish incarnation of this god recalls the name of Onam or Dagon, and that his enmity to the giants or Hiranyas, Akcha and Casyapa, representing as these do the eponyms of Accho and Achzib, which are undoubtedly of Ashchurite origin, does not agree with his being the eldest son of the father of Tekoa. Vishnou, as we have seen, rides upon the serpent Sesha. This Sesha is the snake king, and the same with Ahi, whom Mr. Cox has well shown to be identical with Echidna and the Sphynx, already proved to be a reminiscence of Achuzam. The serpents are fitly connected with the Asuras and Yakshas, being the Takshak race that lorded it for a time in India. The story of Ajasat is that of Zohak, and furnishes an Achuzzath-like form of Achuzam's name. The snake or dragon and the horse Mr. Cox has shown to be united in many mythologies. It is hard to tell how these came to be combined with the memory of Achuzam, yet no other name so completely and satisfactorily unites their etymologies and connected traditions. Achuzam is one of the Buddhas. Gautama and Sommonokodom are rightly names of his, while Narrotama may present us with one taken from his mother Naarah. Kikata and Maghada are Buddhist regions, and Okkaka or Ikshwakoc sovereigns of the Buddhist line. In the latter there is, at times, a confusion of Achuzam and Coz the son of Ammon, which appears also in the Greek story that gives Ogyges, at times, as the son of Ashchur, and at others, connecting him with Thebes, plainly alludes to the ancestor of Jabèz. That Buddha does represent Achuzam appears from the fact that his rites and the Eleusinian

mysteries, and those of the Egyptian funereal ritual, are the same. Pococke has also with great wisdom associated the family of Buddha with the history of Troy or Ilium—a connection which has already appeared in the very names of Jehaleleel and his sons. But still more convincing are the facts that the son of Buddha is Aila or Paruravas (Nilus or Phruron, Jehaleleel or Aroeris), and that he, with his wife Ila, rules the Cabiri, as we have found Thoth or Taautus doing. Akuli, the Asura priest, may be Jehaleleel, who gave his name to Nagara or Jellalabad, and similarly named places. He is also the Salsala (Silsilis) whose statue accompanied that of his father Shahama, so celebrated among the Buddhists. From his town, Pelusium, came the Indian Pelasa, the Pali language, and the Pallis or shepherds who conquered Egypt. He is also Poulastya or Pluto, the same as Plutus (Philitis and Philistine), who is united with Cuvera or Hepher at Kailasa. Pococke finds Ziph or Typhon in Thibet, a Buddhist region. Cophes and the Sibae, with Massogis for Mesha the father of Ziph, and a host of similar names, ancient and modern, attest the presence of the descendants of Jehaleleel in western India. Casyapa, a well-known name in Indian story, is likewise a memorial of Ziph, who is also Capesa or Capeyanas, that dwelt appropriately in Jwalamucha, and whose story is that of Cepheus the son of Belus. Anupa, Kusa, Marisa and a large number of connected names give us Anub, Coz, Mareshah and all that family, with Manu for Ammon. All the members of the line of Achuzam are to be found in Sanskrit mythology—often confused, but frequently arranged in harmonious order, according to the scheme set forth in the Egyptian connection.

Pococke, to whose partial yet exceedingly valuable comparisons I owe much, has united the Cabiri with Cuvera and Khyber. We have already seen that the Yakshas are associated with him, and that he has a still more intimate union with the Kinnaras, who are of Kenaz the son of Hepher. Ganesa, Kansa and Chandra are names given to Kenaz in the Indian mythology. Dasaprayavadi, father of Ganesa, is a much supplemented form of Hepher, and Pouroo, father of Kansa and son of Buddha (this is making Buddha Ptah Sokkari or Ashchur of Tekoa), is an equally abbreviated one. The Prajapati Sthanu and the region of Sthanutirtha commemorate Othniel. In Babbhru, one of the Indian Typhon line associated with Setu and other easily recognizable Ashchurites, we find Hepher. This latter

form at once suggests the Greek or Egyptian word *papyrus*, which fitly takes its name from him after whom Sippara and Kirjath Sepher were called, and all the associations of whom are literary. Byblus is the Greek name proper for the papyrus, as well as that of a Phœnician and Egyptian city in each of which the rites of Adonis were celebrated. It may be that Byblus is Babbhru, the equivalent *l* as in the Septuagint taking the place of *r*, although I have already associated the word with the Horite Ebal, who named Gebalitis. Hepher will yet be represented by a Cephalus, and the Cabiri and Kobolds be united. The rat of Ganesa reappears in the connections of the Greek Apollo Smintheus. Its Hebrew names, Pherah and Chapharpherah, are not to be disjoined from that of the second son of Naarah. Surya, the god connected with Chandra, and Surya, king of Mathoura, connected in like manner with Kansa, are each of them Seraiah, the son of Kenaz. Crishna and the Charashim of Joab show intimate relationship. No other mythology gives a more complete account of the early history of the family of Hepher than that of India. A new interest must attach to the disc worshippers of Egypt, when it is found that they play so important a part in the Hindoo annals. Many names recall Temeni, the third son of Ashchur by Naarah, but I do not at present know enough of his history to justify me in stating tentative connections.

Achashtari is Ivashtri or Tvashtar, united with Asura, and called Visvakarman. With him are found the Rbhous (Rephaim of Ashteroth Karnaim) and the Ashvins. The daughter of Tvashtar is Saranyu, in whom we have the Zerouane of the Persian, and the Zervan of the Assyrian mythologies. She is made the mother of Yama, who is Achumai the Horite, and may therefore have married Jachath the son of Alvan or Reaiah. Thus Atargatis and Ichthys may be united, and Achumai combine two races. Tvashtar is Satyavrata, the same as the Persian Taschter and the Babylonian Xisuthrus. Before the flood he dwelt at Cashmere, where Vasu his brother Achuzam reigned, but in the time of the deluge he was at Critamala, the land of the Cherethites or Gordyeans, named by his half-brother Zereth, the contemporary of Achuzam. It is generally admitted that Satyavrata, Xisuthrus, Seth, &c., are the same. The statement that the flood was poured forth in order to help Gautama Buddha against the Assurs is a somewhat peculiar one, inasmuch as he was pre-eminently an Asura. However, the allusion may be to

the elder Gautama or Etam, who is Adima, and whom the Greek legends, under the names of Cadmus and Athamas, frequently confound with Achuzam. To Cashmere belong the Kshetriyas, who are unmistakably the descendants of Achashtari, no other etymology for the name of the son of Ashchur being possible than that of the ancient Aryan word "Kshattra." The smiting of the Kshetriyas by Parasurama is the same story as that of the fight of Perseus with Ceto of Joppa, and both of these legends are but echoes of the historical facts which the monuments of Egypt afford, that Rameses, whose surcharge is the axe (Parasu), chastised the Shethites or Hittites of the line of Achashtari in their Philistine home. The Kshetriyas, like the Persian Temendonus and the Greek Aegaeon or Briareus, belonged to the Centimani. Achashtari's abbreviated name Sheth survives in the Indian genealogy of Typhon, in which Setu appropriately follows Babbhru. He must also be Yoodistheer, coming after Asoka, who is the great enemy of Duryodhana, the head of the Kooroos, in whom we have no difficulty in recognizing Dardanus or Zereth of Zarthan, the head of the Cherethites. The Satya *yug* and *loka* take their name from him, as the Dvapara from his brother Hepher.

I have already identified Zereth with Duryodhana, the head of the Kooroos. His name, like that of Dhrita in the line of the Indian Typhon, and Dhritarashtra, designates a family rather than an individual. Koorookshetra, on which the rival sons of Naarah and Helah or their descendants fought, combines the names of the combatants. The Krita and Treta yugs are, I think, the same, although it is possible that the latter refers to Jered, the father of Gedor, who may have descended from Zereth, for I am as yet ignorant of his family. The Krita and Satya ages are, however, made identical, showing the contemporaneousness of Zereth and Achashtari. Many connections have presented themselves for Zohar and Ethnan; but as I know nothing definitely concerning them, I prefer for the present to leave them in abeyance.

A very important branch of the Ashchurite family, which finds abundant mention in the ancient Indian writings, is that of Ezra. Mered and Jered, who belong to this line, are the eponyms or ancestors of the Sanskrit Maruts and Rudras, Aditi being in all probability the Jehudijah of Chronicles, and the Ghandaras of the same stock, the families of Gedor; while the Sakyas or Scyths came from the Sucathites or people of Socho, of whom Heber was the

father. This pre-eminently Scythian family I leave for another paper.

Armenia.—The history of Armenia is so slender that it is impossible to say much concerning its connections. Were I to trust to mere verbal analogies, it would be easy to make a list of them. Haig, one of the earliest of Armenian monarchs, is said to be the same as Aeetes of Colchis.[21] The latter, I think there is little doubt, is Achuzam. The region of Phasiana with Ascura, the Taochi who dwelt to the south of Sacasene, with Gordyene, Sophene and many other places, are purely Ashchurite. As for Armenaeus, Aramaeus, Harma and Aranus of Moses of Chorene who follow Haig, they may, I think, represent Harum the father of Aharhel. It is not at all improbable that the Armenians are Jerahmeelite.

Caucasus.—This region, including the ancient Colchis, Iberia and Albania, was considered at an early period to have relations with Egypt, and particularly with its great ruler Sesostris or Achashtari. Dioscurias and the Cyrus river commemorate Ashchur, while Taochir is either a form of Tekoa or of Zohar. The name Khevsours, which some of the modern Circassians give themselves, and that of their Neptune, who is Seozeres, indicate an Ashchurite ancestry. Adighen, the name of the race, recalls the Taochi and the people of Attikeh or Tekoa.

Caucasus itself is but a grander Casius, and is rightly connected with such words as Asia, the Coptic Os, Persian Ized, Babylonian Isi, and a host of other terms denoting royalty and deity, all of which point to Achuzam, the son of Esar or Ashchur. The Phasis flowing into the Black Sea, and the Casius into the Caspian, with Sacasene, present the same word. Aeetes, although sometimes confounded with Jachath son of Alvan, the true solar hero, is Achuzam. His son is Aegialeus or Jehaleleel, and this is the same person as Salauces (Salatis), who, according to Pliny, defeated Sesostris, being also the son of Acetes. Phasis is allowed to be of the same origin as Caucasus, and I have already asserted that it represents Achuzam. There was a king Phasis, the son of whom was Colchos, the founder of Colchis, which is a reminiscence of the Arabian or Palestinian Halak, where Jehaleleel reigned. The Silsilis and Khalil of Egypt, Alaka and Lokaloka of India, Cilicia, Iolchos of Thessaly, and the

[21] Guigniaut iii. 1050.

many places called Chalcis in different parts of Europe and Asia, are memorials of the same son of Achuzam. From him came the Greek *Chalkos*, copper, which in Latin was called *Aes* after his father, and *Cuprum* after his uncle Hepher. Chalkon, king of Cos, presents us with the names in union, unless Cos be a reminiscence of Coz, the son-in-law of Jehaleleel. The whole story of Jason and the Argos nauts belongs to this family, Achuzam occurring under the names of Aeson, Aeetes, Aegeus, &c., the other actors being similarly multiplied and confused, Colchis and Iolchos and Elysium being also the same.

Hepher appears in Hyperion, the head of the sun-worshipping race of Colchis, whose wife is Thea, answering to Taia, wife of the Egyptian Chebron Amenophis. There is a Neaera in this family, and to it belongs, through Aurora, the line of Tithonus and Phæthon, which contains Othniel and his descendants. Sirius the dog-star, Kenaz his father giving the *Kuon*, which in Aeschylus precedes it, is the representative of the solar myth of the Caucasus. Sybaris, a name of Aea, at once brings to mind the Sippara of Babylon, Sepher of Palestine, and Sephres king of Egypt. Aea on the Phasis is, of course, derived from Achuzam, the Babylonian Hea. The Acinasis river may preserve the memory of Kenaz.

The Ossetinians of Caucasus may claim Sheth or Ashtar as their ancestor, or descend from Eshton the son of Mehir. It is worthy of note, however, that Colchis is called Cytean, the latter word being properly connected with Ceto and the Hittites, or people of Cheth, who, if not the same as the Shethites, were at least part of the same great family. Tyndaris in the neighbourhood of Cyta is the same sign of an Ashchurite line as we have found in Tentyra of Egypt, Tyndaris of Marmarica, the Tyndaridæ of Phœnicia and Greece, and the Indian Onderah.

Asia Minor.[22]—There were Greeks in Asia Minor before there were Greeks in Hellas, and these, together with the barbarian peoples of that historical region, came from Palestine and Egypt.

Mysia shows intimate relationships with Palestine and Egypt in the geographical names Abydos, Thebes, Nagara; Ida, which is Edom or the mountain range of Idumea, with Gargarus for Karkor

[22] For similar reasons to those stated above (Note 20), I refer the reader to any good Classical Dictionary for the names and facts alluded to within the areas of which Greek and Latin writers have treated, instead of multiplying quotations from their works. In addition to such an aid, I would recommend the books of Guigniaut, already referred to, and the Abbé Banier, with Cox's Aryan Mythology.

and Cotylus for Joktheel; Scepsis, Cebrene, Aesepus, Priapus, Harpagia, Tereia, Callirhoe and Lectum representing Ziph, Hebron, Heshbon, Peor, Arba, Ataroth, Callirhoe or Lasa, and the Lisan or tongue of the Dead Sea. The name Mysia may be derived from that of Mesha, the father of Ziph, but Xanthus found in it the Lydian translation of Oxya, the beech or ash, as Mysos. It might thus represent Ash-chur or Achuzam. In the reign of Rameses II. we find the Mysians invading Egypt under the standard of the king of the Hittites. In the Troade Homer accordingly places the Cetaei, who are these same Hittites, under Eurypylus, son of Telephus; but the Troade of Homer is in Southern Palestine. Ashchur is Sangarius, the most ancient divinity of this region as well as the eponym of a river in Bithynia. From his son Achuzam came Achaeium, Assos and the Caicus river. He is also Eetion or Jasion the brother of Dardanus, and, it may be, the old Aesyetes and Buzyges, who connects with the Palladium. His son Jehaleleel, as we have seen, is Ilus, the namer of Ilium, a reminiscence of the Egyptian Illahoun, and three of his children appear in the Capys, Tros and Assaracus of Trojan story. Anchises of this line is a Bible Anak, and connects with Aeropus, son of Cepheus, or Arba of Ziph. Teucer we have already found to be Zohar, and Dardanus, son of Corythus, Zereth or his son. Astyoche, a female name, presents a form of Sydyk, who is Achashtari. The following is an attempted restoration of the Trojan line:—

Naarah or Nagara = Sangarius or Ashchur = Helle? or Helah.

Jasion or Achuzam — Dardanus or Zereth — Teucer or Zohar

Ilus or Jehaleleel

Capys, Cepheus or Ziph. — Tros or Tiria. — Assaracus or Asareel.

Aeropus or Arba.

Anchises or Anak.

The feminine royal name Batieia, connected with the Trojan legend, represents Bithiah the daughter of Pharaoh, and Idaea is the Jehudijah spoken of in the same verse of the 4th chapter of First Chronicles. Ganymede, whom Pindar calls a deity regulating the overflow of the Nile, is Canopus or Anub, the son of Ziphah, the daughter of Jehaleleel or Ilus. As pre-eminently the man of the

vine, he was fittingly made the cup-bearer of Jove. The change of B to M is so common in etymology that it needs no comment.

Lydia.—The Lydian line is decidedly Horite, as I have shown in a former paper, the very name Lydia being derived from Lahad the son of Jahath, the Horite. It is, however, full of Ashchurite names. The legend of Caÿstrius has already been alluded to. It is interesting to find Strabo speaking of a temple situated on the Caÿster sacred to the twin heroes Asius and Caÿstrius, or Achuzam and Achashtari. The Nysa which connects with it at once recalls the Palestinian Nyssa or Ienysus, near Gaza, and the Nyssa, which has been identified with Beth-Shan. The river Hyllus commemorates Jehaleleel, and the Hermus Harum, the father of Acharchel, he being Hermon king of Lydia. Jordanus, another Lydian king, is Jered the father of Gedor, and Tmolus may be Othniel, the son of Kenaz. Harum is also Arimus, whom Xanthus made a king in the Typhonian region of Meṣogis, in which word we at once recognize Mesha' or Meshag, the father of Ziph or Typhon. The Lydian Hercules called Sandon or the Red is a confusion of Acharchel, the true Hercules, with the great Sesostris or Achashtari, Sandon or Sandyx, representing the Sheth or Sydyk who ruled especially over the Sethroitic nome of Egypt. Saittae is a Lydian town preserving the very name by which this hero was popularly known. Sandon is also Asterius son of Anax, whose remains, according to Pausanius, lay in the land of the Milesians, being ten cubits in length. He rightly connects with the Anakim. Pausanius likewise mentions the presence of similar remains in a city of Lydia called "the Gate of Temenus," which was doubtless named after the elder brother of Achashtari, the eponym of the Egyptian Damanhour. Sardis is the city of Zereth. The Asioneis connected with it are the people descended from his rival and brother Achuzam; and the Cimmerians who conquered it, and also named Smyrna or Zmyrna, are the families of Zimran, the son of Abraham by Keturah or Electra, whom we have found to be related to the Ashchurites. The Maeones may either have descended from Meon of the line of Mareshah, or Meonothai, the descendant of Kenaz, who certainly named the Maeander. The Lydian royal names Xanthus, Arimus, Alyattes and Myrsus represent Achashtari or Sheth, Harum, Jehaleleel or Salatis, and Mareshah.

Caria.—Heraclea and Bargylia are equally reminiscences of Acharchel, with and without the Coptic article. Cnidus represents Kenaz, and Myndus Meonothai or perhaps Manahath. Miletus, anciently called Anactoria, is the Palestinian Malatha revived, Anactoria preserving the memory of the Anakim, which long survived in such Milesian names as Anaximander and Anaximenes.

Bithynia is probably a geographical record of Othniel, and the Ascanian lake within its territory of his father Kenaz; the promontory Sirias and the town Carusa in *Paphlagonia* representing Seraiah and the Charashim of his son Joab. Sesamus, Aegialus and the river Halys of the latter province preserve the names of Achuzam and his son Jehaleleel, and Sinope commemorates Anub. In the latter place the oracle of Sthenis seems to point to some connection of Othniel and the son of Coz.

Phrygia is famous for the myth of Cybele.[23] Sangarius represents Ashchur, as we have already seen. Nana, his daughter, is the Babylonian Ishtar, and Nanaia daughter of Ormuzd. Midas the son of Gordius, is Midian the son of Abraham by Keturah, and Gordius is Zereth, who may have been the father of the Hittite wife of the great patriarch. Desanaus or Diodas, the Phrygian Hercules, is Achuzam or Athothes, the eldest son of Ashchur. Isauria and Lystra may present forms of Ashchur and Achashtari.

Pamphyllia was anciently called Tekiah, in which Tekoa is at once recognizable. Cestrus is a form of Achashtari. The family of Hepher is represented in this province by Cibyra and another Ascanian lake. At Phaselis, the god Caprus or Cabrus was worshipped, and in him we have no difficulty in finding the Egyptian Kheper.

Pontus preserves many names in the family of Achuzam, and *Cilicia* connects intimately with the history of his son Jehaleleel, Zereth, however, appearing in Tarsus and other places. Space will not permit particularization. I may merely state that the Sandacus of Cilicia is a form of Sydyk, or the Herculean Sesostris, and the

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[23] In the myth of Cybele, who connects with Jasion, as Io with Jasus of Argos, we find, I think, the story of the daughter of Coz. As Cybebe, she at once recalls Kubeibeh of Palestine, named after Zobebah. Atys is, I think—although I am by no means sure of this—her husband Jediael, and Papas or Sabus is her son Jabez. In Marsyas, her companion, we find Mareshah, the father of Hebron, who is the Egyptian Moeris that acted as regent for the young Apophis. Io is Cybele; and Epaphus, who is her son by Theoclymeus, and the same as Apis or Pelops, son of Tantalus, is Jabez. I do not state this, however, with any degree of confidence.

Sardanapalus of Tarsus, of Zereth. Cilicia and Colchis tell the same ancient story, going back to the Halaks and Gilgals of Palestine, the Khalils and Silsilis of Egypt.

Galatia and Cappadocia I had almost omitted in the enumeration of the provinces of Asia Minor that contain traces of Ashchurite domination. In the latter province especially many geographical names appear, preserving the memory of various descendants of the father of Tekoa. These occur among the identifications which Dr. Hyde Clarke has made of the geographical names of Asia Minor with those of Palestine, a selection from which is given in Note 35 of this paper. The Carmalas river of Cappadocia, like Carmylessus of Lycia, points to the fact of immigration into these countries of a population that once had dwelt in the Ashchurite region of Carmel, in Palestine.

V.—TRACES OF THE ASHCHURITES IN THE TRADITIONS, &c. OF THE OCCIDENTAL NATIONS OF THE INDO-EUROPEAN STOCK.

The traditions and geographical names of Asia Minor have greater affinities with those of the West than with those of the East. Still they form a connecting link between the reminiscences or traces of the family of Ashchur, not only among oriental Aryan, but also Semitic peoples and those of Europe. The islands of the Levant unite the traditions of Asia Minor to those of Greece. In Italy and Spain, African types appear, as well as among the Celtic peoples, giving colour to the derivation of the races of Western Europe from Egypt by way of Northern Africa. The Germanic tribes afford in their traditions much that is independent of both of these sources, as if they had entered upon their European possessions by the north-eastern route afterwards taken by the Sclavonic peoples. Their mythology has, however, many connections with that of the Celts.

Greek Islands.—*Samothrace* is famous for the mysteries of Ceres and the worship of the Cabiri. These Cabiri, as I have already stated, derived their name from Hepher, the second son of Ashchur by Naarah. The name of Ashchur survives in those of three of them—Axieros, Axiokersus and Axiokersa; while Casmillus, the fourth, is a peculiar corruption of Achuzam. Zagreus the Cabir may also be Ashchur, or his son Zochar. That Casmillus is Achuzam appears from his being identical with the Thoth or Taautus of Egypt

and Phœnicia and the Etruscan Tages. He is also Iacchos, Saon or Saus, and Cosmos, these being forms of Jasion, the brother of Dardanus, heroes already identified with Achuzam and Zereth. The connection of Jasion with Alea—like that of Buddha and Ila—taken together with the name of Aleo, one of the Cabirian family, the identification of Axiokersus and Pluto, and the relation of father and son sustained by Jasion and Plutus respectively, give another confirmation of the descent of Jehaleleel from Achuzam. The wife of Achuzam was a member of the family to which Jezreel, the god of seed, belonged, and is appropriately called Ceres, although she was most probably Zelelponi, the daughter of Etam. She is the Cabirian or Gephyrean Ceres, and shows her relation to Achuzam by the names Achaea, Azesia and Auxesia. Hermes or Casmillus with his serpents appropriately forms part of the legend regarding her. Her daughter Proserpine has been already united with the line of Ashchur, and Tyche and Styx, the companions of this goddess, present us with forms of Tekoa and Sydyk, or Achashtari. In Etneus, who is one of the Cabiri, the name of Ethnan, the youngest son of Ashchur by Helah, appears. The Pelasgian inhabitants of Samothrace are simply the Philistines or Philisheth. Samothrace was originally called Samos, doubtless from Sem or Achuzam. Naucratis of Egypt, which took its name from Naarah, was called Samocratis, the Sem form of her eldest son's name superseding in part her own. In the Saon of Samothrace, which represents him, we may have the original of the Beni-Shaon, whom we have found to be identical with the Beni-Sheth of the Hebrew record.

Tenedos must not be omitted even in this superficial enumeration of the islands containing recollections of the Ashchurite families. Its name is derived from Othniel, who is Tennes, son of Cycnus or Kenaz. Leucophrys, an old name of the island, is Leophrah or Legophrah, which we have already found to commemorate Ophrah, of the line of Othniel. The hatchet of Tennes is his Egyptian surcharge.

Cyprus in its very name represents Hepher, the head of the Cabiri. Its family of Cinyrads preserved the memory of Kenaz, and the rites of Adonis that of his son Othniel. The Teucer who connects with its history is really Zochar, the son of Helah; and Iatnan, a name given to the island, may furnish a memorial of his brother Ethnan. Cyprus and Egypt and Phœnicia were intimately

related, and their relations will be found to lie principally within the family of Hepher. The Cyprians have been long connected with the Hittites, of whom Citium is a reminiscence.

Chios and *Cos* seem to preserve,—the one the name of Achuzam, the other that of Coz, the father of Anub or Œnopion, who connects with both islands; the legends concerning Bacchus being made up of the history of the son of Ashchur and that of the son of Ammon.

Crete next demands attention. Many of its traditions are those of the Horite families. I cannot doubt that the original Minos is Manahath, but Ammon, Meonothai and Jamin, the son of Ram, have been at times confounded with this ancient monarch. Many families, however, inhabited this island, and among them the Ashchurites occupied no inconspicuous position. Macaris, an ancient name of Crete, and Cres, its first monarch, are probably forms of the name of Ashchur. The name Crete, however, is that of the Bible Creti or Cherethites, between whose original coast and the Carthaginian settlement of the family of Zereth it lay. Several writers have identified the Cherethites and Cretans, but all have, as it seems most unnecessarily and unreasonably, deduced the former from the latter. In Achuzam we find Aeacus, the assessor with Minos in Hades. The Achaeans of Crete are his descendants, and the Cosmi or magistrates of the island retained his name, which survived also in Cisamus and other designations of places. Plutus, born among the Cretans, is Jehaleleel his son, and he, in the *r* form of his name, is Preres son of Cydon. This Cydon, who is Achuzam, is made a son of Tegeates, who is the father of Tekoa, and the female name Acacallis connected with him originally designated his son Jehaleleel. Hepher may be represented by the promontory Zephyrium, also found in Cyprus; while Gonssus is undoubtedly a reminiscence of his son Kenaz. Asterius, Xanthus, Taurus or Sandes, made a contemporary of the first Minos, is Achashtari or Sheth, who is also Saturn or Cronos, Ashteroth and Karnaim. Minos, son of Asterius, is Menu of Tvashtar and the Mannus who connects with Tuisco. Perhaps he is Ammon. Europa is undoubtedly Astarte. The Dymanes are of the family of Temeni, who may be Atymnius, brother of Europa. In the Curetes we find the descendants of Zereth, who gave his name to the mixed population of this once celebrated island. The Eteocreti are the Tocchari, or descendants of Zohar. Itanus and Titanus are probably memorials of Ethnan. The Jardanus of Crete and Elis, like the Italian

Eridanus and many other names of streams, testifies to the presence of a Palestinian population, and probably to that of descendants of the Ashchurite Jered. A transference of the mythology and early history of the Cretans to the regions of Egypt and Palestine inhabited by the sons of Zereth will make plain much that at present is utterly unintelligible in these ancient records, and give them a place in the history of the world, not of an obscure and semi-barbarous island.

Aegina connects with the Ashchurites in Aeacus, already identified with Achuzam, whose son Jehaleleel may be represented by Peleus. Phocus is Coz; and Œnopia, an ancient name of the island, represents Anub.

Salamis, although its name is derived from Salma, the father of Bethlehem, nevertheless shows Ashchurite relationships in Scyras, Cychrea and Pityussa, its ancient designations, which recall Ashchur and Abi Tekoa. The Cenchreus who connects with its history is Kenaz, the head of the Cinyrads of Cyprus, which also has a Salamis.

Eubœa, called also Asopia and Abantia, and connected with the myth of Io and Epaphus, preserves the name of Jabez, who is Apophis and Epaphus.

Ithaca is a reminiscence of Tekoa, like the Egyptian Attikeh and the Utica of Carthaginia. The Ithaca of Homer was Tekoa itself, Neritum being Naarath or Maarath, near at hand, and Cephallenia Hebron. The Taphians of the latter place took their name from Tappuah or Ziph.

Corcyra is thoroughly Ashchurite. It recalls the Karkor of the Shethites. Its ancient name Scheria is the same as Shachar and the Egyptian Sakkarah. Ptychia, close beside it, is a form of Tekoa with the Coptic article. Scheria is the island of the Phaeacians, who are the descendants of Achuzam, as Phix and the founder of Phacussa. The Aegaeus river preserves his name in a purer form, and Hypereia that of his brother Hepher. Hyllus, Halius and Ocyalus, names which belong to its traditions, represent Jehaleleel. Its later name of Corfu came from an occupation by the family of Chareph, the father of Beth Gader, whose name, connected by Gesenius with the Latin *carpo*, is also the original, as T Hareph, of Drepane, another designation for the island.

Greece.—The name of Ashchur or Osochor undoubtedly survives in the adjective *ischuros*. He is, by the prefix of the Arabic article, Alexiares, son of Hebe or Abiah, and, by the prefix of the Coptic

Bassareus, the father of the first Bacchus, or Achuzam. Neaera, the so-called wife of Helius, and Moira, who unites with Tyche, represent Naarah. The Greek word answering to Achuzam is *Ktema*, signifying, like the Hebrew, *possession*. Ctimenus is thus a Greek form of Achuzam. He is Zeus Casius and Acesias, or the healer, connected with the myth of Hercules at Accho, and united with Iaso. Hades is an abbreviated Athothian form of his name, as appears in its synonym Agesander. He is also Ixion, a man of the horse, whom, according to Tzetzes, a Pharaoh expiated for the commission of a crime similar to that of the Persian Zohak and the Indian Ajasat. The horse connection appears again in Pegasus, the same as Phix and Phakus, as well as in Augeas of the stables, whose son Phyleus is Jehaleleel. The Latin *equus* preserves the Arabic Yauk and the Hyksos, whom Raoul Rochette made the authors of Greek civilization. Besides Phyleus, we also find synonyms for Jehaleleel in Eol, the son of Poseidon, and in Acelis, Agelaus, Cleolaus and Hyllus, sons of Hercules, who must be Sem Hercules or Hercules Assis. Agelaus also is the son of Ixion. Poseidon may represent Achuzam; at any rate he is a member of the Ashchurite family, among whom, in the line of Helah, we find the men of the sea, as in that of Naarah we find the horsemen of antiquity. Cephalus, father or ancestor of Tithonus or Phaethon, Cycnus, &c., is Hepher, the father of Kenaz and grandfather of Othniel. Temenus, son of Pelasgus, is Temeni. Hitzig has demonstrated the national unity of Philistines and Pelasgians. They are the people of Sheth or Achashtari, and he is Astraeus the Titan, husband of Eos, the daughter of Hyperion, or Hepher his brother. Zereth is Triton, and Taras the son of Poseidon. I now proceed to analyze the mythology, geography and early history of the various states of Hellas, for the purpose of showing the vast preponderance of the Ashchurite family in their populations and traditions.

Laconia.—In Laconia, as in Crete, a union of Horite and Ashchurite traditions appears.[24] Ashchur himself gave his name, as we have seen, to the Dioscuri, the chief of whom, Castor, was his son Achashtari. As for Pollux or Polydeukes, he is no son of Ashchur, and must, I think, be Jehaleleel, the son of Achashtari's elder brother

[24] Laconia has important connections with the family of Bethlehem, the head of which was Salma, and of which I think Helah, the wife of Ashchur, was a member. To this family of Lachm the Lycians, Lycaonians, with, I believe, Amalek (the Laconian Amyclas) belonged. Arcadia has also Bethlehemite relations in Lycaon.

Achuzam. Of this, however, I am not certain. Pilku, a city of Sheth, connects with him. Ashchur is also the head of the Tyndaridæ, who, with Helena Dendritis, are of Tentyra or Denderah, in Egypt. These are the Anaktes, taking their name, with many designations of Spartan monarchs and others, from the Anakim of Palestine. In the war of Theseus with the Dioscuri, Aidoneus is allied with the latter, he being Achuzam, who is also Aegeus, an ancient hero, the ancestor of the Spartan Aegidae. In the Phix form of his name he is also Phegeus, the father of Sparton. But he is likewise, with the prefix of the Arabic article Lacedaemon, the son of Jupiter and Taygete, the latter word coming from Tekoa. His son Jehaleleel is the Spartan Lelex, whose daughter Therapne is the same as Theraphone, daughter of Dexamenus, or his father Achuzam. Therapne or Theraphone I believe to be daughter neither of Achuzam nor of Jehaleleel, but of Etam, and the wife of the eldest son of Naarah, her true name being Zelelponi. Perieres, the Lacedaemonian, who is made a son of Aeolus, is, I am persuaded, the same person, being the Aila or Paruravas of the Indian story. Hepher is represented by the god or hero Sebrus, honoured in Sparta, and may very probably be the same as Œbalus and Aphareus—the latter name, however, connecting perhaps with Ophrah, the son of Meonothai. Ketoessa, a term applied by Homer to Lacedaemon, shows the Hittite connection of its population. Amyclas and Amyclae are famous Laconian names which exhibit the Amalekite relationship of the Lacedaemonians.

Messenia exhibits many points of connection with the family of Hepher.

Elis seems to be pre-eminently the land of Jehaleleel, who is Eleus, king of the Epei, Epeus himself being, I think, Jabez. Achuzam is, as we have seen, Augeas, son of Helios and Naupidame, a kind of Nephthys. His son Phyleus or Jehaleleel is represented as aiding Dexamenus against Hercules, Dexamenus being simply his own father Achuzam. Meges, called son of Phyleus, is Mesha, father of Ziph, whose name survives in the Typaeus mountain. Achuzam's name also remained in the Caucones, Iasus, to whose share that part of Greece fell, and the city Cycesium. The Selleis and Enipeus respectively recall Jehaleleel and Anub, while Ephyra gives us a reminiscence of Hepher.

Arcadia takes its name from the family of Jerachmeel, but that of Ashchur occupies an important place in its history. Ashchur him-

self is the hero from whom the neighbouring Laconian district of Sciritis took its name, as well as the Sciria, or feast of Bacchus, at Alea. His town, Tekoa, survived in Tegea, and he himself is Tegeates, called a son of Lycaon, and the husband of Maera, daughter of Nereus, who is Naarah. Nonacris, the wife of Lycaon, and the name of a city of Arcadia, represents the same consort of the father of Tekoa. The Phulakeis of Tegea recall Pollux, Pilku and many connected names. The gigantic skeleton of Orestes, said to have been found in the same city, bears witness to the Herculean stature of the Ashchurites. Lycaon, whose name appears in many parts of the primitive history of the Arcadians, although properly the Lakhm or Lechem after whom Bethlehem or Beth Lechem was called, stands sometimes in the place of Ashchur, because, as I have already stated, Helah, the wife of the latter, belonged to the family of Salma. Among the sons of Lycaon, Achuzam is represented by Acacus, founder of Acacesium, and by Aegæon, who is the same person as the so-called Uranid, one of the Hekatoncheires, also termed Briareus, the latter being really his son Perieres or Paruravas, Jehaleleel. Aegaeus, as a name of Neptune, helps likewise to confirm the connection of Poseidon and Achuzam. Another son of Lycaon, more famous than either of these, is Nyctimus, a form of Ctimenus, with which we have found the word Achuzam to agree. His daughter Callisto, who is also made daughter of Lycaon or of Ceteus, the Hittite, is Virgo Nonacrina, thus recalling the name of his mother Naarah, or Naaran. With Achuzam, in the Buddha form of his name, we must connect Phthius, son of Lycaon, and Aphidas, father of Aleus, the latter being Jehaleleel. Still another name for him is, as we have already seen, Phegeus, king of Psophis or Ziph. Yet Phegeus, as father of Axion and Temenus, sometimes represents Ashchur, the beech replacing the ash. The annals of Argos, however, will show the identity of the Phikean name Phegeus with Achuzam. Aleus is made son of Neara instead of grandson, and is appropriately the head of the Tegean line. His son Cepheus is Ziph, and Aeropus—made son of Cepheus and also of Phegeus—represents Arba; while Ancaeus, another grandson of Aleus, is Anak. It can hardly be that Arba was a son of Ziph, yet he must connect in some way with his family. The not very common name Amphidamas has already appeared, denoting a son of Busiris or Ashchur, and it now reappears as that of a brother of Cepheus. Caphyae and Sepia are

geographical memorials of the same Cepheus or Ziph. Minerva Alea and Skiras unite the memory of Jehaleleel and Ashchur with the rites of the goddess, whose Latin name may be a form of Naarah.[24*] Phigalia and Bucolion, both of which are Arcadian, may, as Hitzig has suggested, preserve the fame of Phichol, the chief captain of the army of Abimelech or Jehaleleel. Hepher may, with the prefix of the Arabic article, be Alipherus son of Lycaon, whose name is identical with the Chaldean Alapar and the Italian Liparus, son of Auson. We have already found Temeni in Temenus, called the son of Phegeus. The history of Achashtari evidently does not belong to Arcadia. Yet the Arcadian Styx, who married Pallas or Piras, may furnish a missing link in the connections of the Ashchurite family, giving to Jehaleleel a daughter of Achashtari or Sydyk as his wife. Zereth survives in an Arcadian Zerethra, reproducing the region of that name in Egypt and the coast of the Cherethites. He is also Corethon, son of Lycaon, and Corythus of Tegea, who is said to have come of Jasion and Ceres. Still another name for him is Gortys, son of Tegeates. The Typhonian character of Arcadia's population is too well known to require comment.

Argos presents many points of agreement in its early history with that of Arcadia. Achuzam is the Argive Phegeus, who is also Aezeus, Iasus, Acasus, Acassus or Ecbasus.[25] In Iasus Mr. Gladstone has found a name Phœnician, Egyptian and Pelasgian.[26] Inachus, his father, is the head of the Anakim, and Melia, his mother, but translates the *Ash*, which comes out fully in the Scandinavian Askr. The Achaean Argos is Argos Iasum; and rightly so, for Iasus and Achaeus both designate Achuzam. Achaeus and Phthius appear appropriately in the Argive family with Temenus, Asterius, Aeropus and Europus, Haemon and Ammon, Aegialeus and Piras, Messon and Mycene, Apis and Epaphus, Asopus and Psophis, Tiryns, Hermion, Sthenelas, Agenor, Echephron and a host of other Ashchurite names, denoting Achuzam, Temeni, Achashtari, Arba, Ammon, Jehaleleel, Mesha, Jabez, Ziph, Tiria, Harum, Othniel, Kenaz and Ephron. Phoroneus, as the inventor of letters, may perhaps be Hepher; but I incline to the belief that, as the con-

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24* With this Skiria the use of the umbrella in the ritual of Buddhism is connected.

25 Schubart, Quæstiones Genealogicæ Historicæ in Antiquitatem Heroicam Græcam. Marburg, 1832. Fascic. Prim. Argolica, p. 39, &c.

26 Juventus Mundi, 88.

temporary of Aegialeus or Jehaleleel, and as connected with the Europa or Arba family, he is Ephron, the son of Zohar, who ruled in Kirjath Arba, which was known as Hebron. With his family, in some way, the mother of Jabez, Apis or Epaphus is connected. The greatest confusion appears in the Argive genealogies, yet, from the fulness with which they are given, they may prove useful in the work of recovering the lost history of the Ashchurites, when from generalities we are able to come to particulars. The temple of Minerva Saitidos, seen by Pausanius in Argolis, was a monument of old Egyptian supremacy. The Satyrs and Curetes, who came of Hecataeus and the daughter of Phoroneus, represent the sons of Achashtari and Zereth, Hecataeus being their elder brother Achuzam. It is worthy of note that the deluge of Ogyges, which happened in the time of Phoroneus, who so far seems rather to be Hepher than Ephron, has been attributed to Egypt.[27] Many Argive names, both of persons and places, with that of Argos itself, connect with the family of Jerachmeel, with which that of Ashchur was originally related.

Achaia, Sicyon, Corinth and Megara.—Achaia presents us with a form of Aches or Hyksos or Achuzam. The same name survives in those of Tisamenus and Ogyges, as well as in that of Dexamenus, king of Olenus, whose father Oecias is but a repetition of himself. Deianira and Theraphone were the daughters of Dexamenus, and these are the same as Deianira, daughter of Bacchus, and Therapne of Lelex. Helice and Aegialea represent Jehaleleel, the Philisheth or Pelasgian. Helice recalls Helix, son of Lycaon, and connects with Helicias, forked lightning, the Assyrian Khalkhalla and Latin Elicius. Anax Andron, as a title of Achaean sovereignty, recalls the Anakim.

Sicyon is, I think, another form of Achuzam's name; and Oicles, the son of the monarch so called, is Jehaleleel. They named the Hys and Hyllean tribes respectively, while the Dymanes came of Temeni. Pittheus is a Sicyonian Ptah or Phthius or Buddha. Aegialeus, the founder of Sicyonian monarchy, is, as we have already seen, Jehaleleel; Europs is some Arba or Hareph; Apis, and perhaps Epopeus, Jabez; Aegyrus and Echyreus, an Egyptian Cheres; Messapus is probably Ziph; and Marathus or Marasus Mareshah,

[27] See many authorities in Banier's Mythology and Fables Explained by History. London, 1740. Vol. iii. p. 368, &c.

the father of Hebron. Apollo Carneus, worshipped at Sicyon, is Achashtari as Karnaim.

Corinth connects with Achuzam in Ixion, whose son Agelaus is Jehaleleel. In its ancient name of Ephyre we find Hepher, Cenchraea being a reminiscence of his son Kenaz or Acencheres. Tenea is shown by Strabo to connect with Tenedos, and thus with Othniel. Arion of Corinth and Jonah have been often compared. It is worthy of note that Jonah was of Gath Hepher, which lay to the south of the Achaean region of Palestine, containing Accho, Achzib, Achshaph, &c.

The traditions of Megaris connect with those of Laconia. Megarus or Car is, I think, Ashchur himself, Lelex his son, who came from Egypt, being, as already stated, Jehaleleel. Cleson and Pylas are but repetitions of the latter monarch's name. Sciron of Megara is another memorial of Ashchur.

Attica.—The Aegicores, one of the Attic tribes, are doubtless the Ashchurites proper. The name of the father of Tekoa survives, however, in a better form as Scirios, the father of Aegeus, or Achuzam. He is also the Salaminian seer Scirus, who built the temple to Athene Sciras and founded the Scirophoria. His wife Naarah gave their title to the Naucraries. Tekoa survives in Attica, Tettix, Autochthon and in Tychon, an Athenian god. Aegeus has been already connected with Achuzam, who, as Thoth, may also be Theseus. The term Thesmos with the Thesmophories recall the Arabic Tasm, which designates the same person. The Oschophories, connected with these, may commemorate him or his father. He is also Academus, an ancient hero related to the Tyndaridæ, in whom we find at once Agathodaemon and Lacedaemon. The Eleusinian mysteries derive their name from the Palestinian Elusa or Khulasa, the Indian Kailasa and the Egyptian Ahalu; Eleusis and Celeus, who came of Boeotus, being equally Jehaleleel. Metanira, wife of Celeus, is the same person as Deianira, daughter of Dexamenus. Many things in the Eleusinian mysteries are capable of explanation when the Egyptian funereal ritual and the history of Achuzam's line are compared with them. The mysterious expressions "*Huie Tokuie*" and "*Kogx om pax*" are formed from Tekoa and Achuzam respectively. The Choes are the priests of Achuzam. Pallas Achaea is a union of the names of Jehaleleel and his father. Psaphis and Cephissus alike commemorate Ziph. That the Athenians were a

colony of Egyptian Saites is attested by many credible authors, and modern researches have plainly shown a connection of rites tending to establish the legend. Athens was originally called Asty, and this name, derived by Diodorus from Egypt, is, as I have elsewhere stated, identical with the Philistine Ashdod and the Egyptian Fostat. The Pischdadian line of Persia is the same Saitic family, Fostat and Pischdad giving a form of Poseidon, already united with the Ashchurites. Sheth must lie at the foundation of these words. That Ashdod and ancient Athens are one appears from the identity of the story related by the Scholiast on Aristophanes and that in 1 Sam. v. 6, with which the statement of Herodotus (I. 105) concerning the Scythians at Ascalon may be compared. The name Athens may come through Tanis or Athennes, from Ethnan, the youngest son of Helah. Erechtheus is Jerachmeel, and Cecrops the Egyptian Ekerophes, who do not belong to the family of Ashchur.

Boeotia.—The geographical names of Egypt and Palestine, using the latter word as including everything between Egypt and Syria, are reproduced with great faithfulness in Boeotia. Most of them are Ashchurite, although the Orchomenian region belongs to the line of Jerachmeel, to which I have already more than once alluded. Ascra is a memorial of Ashchur himself; Isos, Phocae, and perhaps Onchestus, recall Achuzam; Jehaleleel appears in Helicon (a Bible Halak), Alalcomenae and Aulis, opposite Chalcis of Euboea, which has the same origin; Siphae, Copae and Lake Copais, the Cephissus, the Asopus, Thisbe and Thespiae represent Ziph. The name Boeotia is a form of Achuzam with the Coptic article, Boeotus being the Egyptian Thoth or Boęthos and the Indian Buddha, already identified with the eldest son of Naarah, Aeolus, connected with him, being his son Jehaleleel. He is also Ogyges, an Achaean name approaching to the form Agag, given at a later period than that of Achuzam to the kings of the Amalekites, whom we have found to represent some of his descendants. Ogyges was king of the Ectenes, who present us with another form of his own name, and the father of Eleusis and Aeolus or Jehaleleel. As connected with Thebes, he exhibits a confounding of Achuzam with Coz, the grandfather of Jabez. Cadmus, although at times representing Etam or Getam, is generally a truncated form of Academus, Lacedaemon and Agathodaemon, exhibiting traditions of Achuzam. As such he is father of Polydorus, a Balder or Polydeukes, who is Jehaleleel, and in whom we find a synonym

for Cilix, wrongly designated a brother of Cadmus. The Cadmus who sowed the dragon's teeth, however, is Etam, the father of Jezreel, or the sown of God; and Echion, one of the Spartoi, is his son-in-law Achuzam, whose name also survived in Echidna, Aegida, Sphinx, and similar Ophite names. Cadmus and Cadmillus have been frequently compared and identified. The same confusion as we find in the traditions of the Greek Cadmus are manifest in those of the Indian Gautama, who also, at times, represents Etam, and at others Achuzam. Thasus, called a companion of Cadmus, is Thoth or Achuzam. Hyes, a name of Bacchus or Boeotus, the Bochus or Boethos of Manetho's second dynasty, at once recalls the Babylonian Hea, whom we have identified with Ashchur's first-born. Glaucus with his train of Cetea or Hittites, a son of Poseidon, is Jehaleleel. He is improperly called son of Copeus, who is really his own son Ziph. The Aeolian line exhibits manifest Ashchurite relationships. Aeolus himself, with Eleus and Perieres, denote Jehaleleel; Cretheus is Zereth; Macednus, Achuzam; Ormenus, Harum; Pierus, Beor; Phocus, Coz; and Epeus, Jabez. The union of Pegasus and Helicon simply arises from the fact that the latter denotes the son of the Ashchurite designated by the former name. Hyperenor, the brother or companion of Echion, is Hepher or Hyperion. Corythus, called the father of Harmonia, is Zereth. Zereth, who is the Phœnician Melcartus, is also the sea-deity Melicerta, his mother Ino Leucothœ, who is the same as Halia, sister of the Telchins and lover of Poseidon, being Helah the wife of Ashchur, and, as I have already hinted, a daughter of Salma, the father of Bethlehem, the Bethlehemites being the Ptelchins. The Itonian Minerva may be a memorial of Ethnan, his younger brother. Nysa, so famous in early Grecian history in connection with the story of Bacchus and Ceres, has been referred to Palestine by many writers. Thus Diodorus places it in Arabia, between the Nile and Phœnicia (Jenysus), and Pliny in Palestine, on the frontiers of Arabia; Stephanus of Byzantium identifies it with Scythopolis, which Josephus makes the same as Beth-Shan; and Philonides, in Athenaeus, brings Bacchus and the vine from the Red Sea. The Bacchus of the mysteries, or Jacchus, is Achuzam; but the Bacchus of the vine is Coz, the father of Anub, or Œnopion. As such he is properly the son of Ammon. He connects with the line of Achuzam by marriage with Ziphah, the daughter of Jehaleleel. Transfer the Eleusinian and Bacchic mysteries to the

region of Gerar, and all geographical absurdities are at once removed. The poets tell a true story, which all the national vanity of the Greeks and their popular forgetfulness of their derivation have not been able to rob of all traces of an Oriental and Palestinian original.

Phocis.—The history of this state repeats in part that of Boeotia. Phocus himself, with his father Aeacus, denotes Achuzam, his son Peleus being Jehaleleel, who is also Elieus, called son of Cephissus, and the eponym of Lilaea and Alalia. Hylae of Boeotia is the same word without the reduplicated *l*. The Hosioi of Delphi, who alone had the right to celebrate the mysteries of Zagreus, are of Achuzam and the later representatives of the Egyptian priests of Aches or Thoth. Tereus of Phocis may be Tiria, the son of Jehaleleel. The Leleges of Jehaleleel early possessed Phocis, and the presence of Delphi in that country answers to the connection of Lelex and Teleboas. The latter is, I believe, the Edomite Eliphaz, whose Hittite mother belonged to the family of Ashchur, and is also the same as the Mysian Telephus, son of a daughter of Aleus, who is Jehaleleel. It is possible, although hardly probable, that Adah the mother of Eliphaz was of Jehaleleel's family.

Locris.—The Leleges of Jehaleleel are said to have possessed this country in early days, and Locrus, its eponym, is made a son of Phaeax or Achuzam. Many places in its three divisions retained Ashchurite names. The initial *l*, I think, must be the remnant of the Arabic article, which is present in full form in Alcinous, the name of the brother of Locrus. It is worthy of note that the Loegrian tribes of British story connect with Hu or Achuzam and Ceridwen, or Ceres his wife, taking their name from Locrin, who is made a brother of Ḳamber or Zimran.

Aetolia has Jerahmeelite connections in the line of Jediael and Gilead. Chalcis and Œchalia equally preserve the memory of Jehaleleel. Taphiassus may have derived its name from Ziph, or from Tappuaḥ the son of Hebron. Dexamenus of Olenus is Achuzam, and he may also be Ochesias, father of Periphas. This Periphas or Phorbas is, I believe, Hareph the father of Beth-Gader, rather than Arba, and the same as the Egyptian Cerpheres or Chareph-ra, whom we have found related to the family of Ashchur in the history of Corcyra or Corfu. His connection with Achuzam appears from the relations of the following pairs of names: Jasion and Corybas, Acessamenus and Periboea, Echidna and Cerberus, Phegeus

and Aeropus, Mygdon and Coroebus, perhaps Dexamenus and Theraphone. Europs, Phorbas and Triopas, of the Argive line, may be the same Hareph. Penuel and Jered, each of whom is called the father of Gedor, must, I think, connect with the Centaur (Gendor) line, of which he is the head as Pirithous, who, true to the relationship, is the son of Ixion or Achuzam. The Indian Maruts and Rudras, who are horsemen, favour this connection.

Acarnania.—The rivers Achelous and Inachus set forth Jehaleleel and the Anakim. The Echinades or Oxiae are the islands of Achuzam, and the Taphians near at hand are the maritime Ziphites. The Curetes and Leleges, fabled once to have inhabited this region, are the descendants of Zereth and Jehaleleel. Locris and Acarnania have connections perhaps with the Karnaim of Ashteroth or Achashtari, whose name may survive in Astacus of the latter, or with Eker the son of Ram and the eponym of Ekron, who is also, I think, the Cecrops of Attica.

Epirus contains a large number of Ashchurite names. Aidoneus, the king of the Molossi, is Achuzam, who has been identified with Hades and similar words, and who is also the father of the Egyptian Philitis or Balot, who is Pluto. Cassope of the Molossi may be a reminiscence of the Palestinian Ziph and Malatha. The Aous or Aeas retains the memory of Achuzam. Epirus itself derived its name from Hepher, Dodona being perhaps a form of Othniel.

Thessaly.—It would be vain to attempt an enumeration of localities bearing Ashchurite names in this country. Let a few of them suffice. Ascuris and Sycurium represent Ashchur; Ossa, Aesone, Oxynia, Echinus and Ctimene, Achuzam; Pherae and Cyphara, Hepher; Hestiaeotis and Asterium, Achashtari; Gyrton and Itonus, Zereth and Ethnan. Iolcos, Sepias, Orminium, Enipeus, Phthiotis, Thebes, Boebeis, Othrys, Eurotas and Scotussa represent respectively Jehaleleel, Ziph, Harum, Anub, Jabez, Zobebah, Jether, Jered and the Sucathites of Heber. Pagasae, Œchalia and Cyphus are other memorials of Achuzam, his son and grandson. Jupiter Actaeus, worshipped at Iolcos, may be Achuzam. Aeolis was an old name of Thessaly, which itself may be derived from Jehaleleel. The Aleuadae, at any rate, among whom the name Scopas appears, and who were the Tagoi of Thessaly, belonged to the family of Jehaleleel in the line of Ziph, their title being a reminiscence of Tekoa. Cretheus of Iolcos is of course Zereth.

In the above connections the merest outline is necessarily given of the historic and geographical traces of the Ashchurites in Greece. A respectable volume might easily be written on the connections of a single state or tribe with that ancient family. All that I have endeavoured at present to do is to show that the larger part of the population of Hellas is derivable from the Hyksos of Egypt and the Philistines of Palestine. This being conceded, the early legends of Greece must be at once transferred to the regions inhabited by the ancestors of those from whom we have received them, and primitive universal history by their means be restored. Few readers would have patience to follow me, did time and space permit, in exhibiting the argument for each individual connection made. I am convinced, however, that the great majority of them will be found to bear the closest inspection, and not by one but by many links to bind the individual Greek peoples and the Ashchurites in unity.

Macedonia and Thrace.—Macedonia, the land of Chittim, derives its name from Achuzam, the great Hittite. Macedo, whom Diodorus connects with Osiris, and other writers with Æolus and Lycaon, is this son of Ashchur. The Indian Magadha and the Palestinian Megiddo must, I think, exhibit a similar corruption of the original word to that which appears in Macedon. The Axius river recalls the Syrian Axius or Typhon, and the Astraeus or Aestraeus, like the Caÿster, commemorates Achashtari. Chalcidice is a memorial of Jehaleleel, although Sithonia, in all probability, like the district of Aestraea, preserves the name of Sheth or Achashtari also. Assurus, Ossa, Idomene and Cophus set forth Ashchur, Achuzam, Temeni and Ziph. Æmathia is a transplanted Hamath. The Syrian city was situated upon the Axius, and all its surroundings exhibit a wonderful agreement with Æmathia and adjacent parts of Macedonia. Pieria, Chalcidice, Cyrrhus, Edessa, Beroea, Arethusa and a large number of other places, prove that the Macedonians once dwelt in northern Syria. The god of the Hamathites, called Ashima, was in all probability Achuzam or Macedo. This Ashima seems to have been the same as Asmodeus, who is proved to be Achuzam by his name Sachr, in which we find Ashchur, the name of his father. It is hard to say what the connections of Hemath, the father of the house of Rechab, are, or how he who gave its name to Hamath or Æmathia relates to the eldest son of Naarah. The Temenidae who ruled in Macedonia were of the family of Temeni, the brother of Achuzam, and their

record may enable us to discover the genealogies of his at present unknown line.

Thrace had an ancient king, Eusorus, who is Ashchur. Neaera, wife of Strymon, who is father of Astraeus, is Naarah, mother of Achashtari, Strymon itself being derived from the latter rather than from any name of his father. Acessamenus, in whose family appear Periboea, Axion and Asteropaeus, is Achuzam. He is also the Agassamenus of Diodorus, who succeeded Butes upon the throne of the Thracians, and who married Pancratis, daughter of Aloeus. Strabo has well set forth the geographical connections of Thrace and the Troade, a region the names of which have been already thoroughly identified with those of the Ashchurites.[23] The Satrae, Odomanti, Moesi and Sapaei represent the descendants of Achashtari, Temeni, Mesha and Ziph. The Hebrus may commemorate Hepher, and the range of Haemus, Ammon, while Zerynthus recalls Zereth. All the names of the family of Tekoa may be found in this remarkable but comparatively unhistorical region. Scythia, the land of the Sucathites, presents many interesting connections with Thrace in its geographical and, where these survive, historical names. These are links to bind Celtic and Greek traditions together to the common Ashchurite foundation.

Italy.—Æsar, the Etruscan divinity, the Ausar of Etruria, the Isar in Northern Italy, and the Oscan people, are derived from the name of the father of Tekoa. Ischia, one of the Pithecussae in which part of the fable of Typhon is laid, presents Ashchur and Abi Tekoa in relation to Ziph. Tages, who has been identified or at least united with Thoth, Sydyk, Teutates and Casmillus, and the ass's head of whose worship denotes the ass of Sheth, is a form of Tekoa or Tegeates. Neriene, whose trumpet feast is that of Athene Salpinx, is Naarah, whose husband's city, Tekoa, designates a trumpet blast. The two words Socrus and Nurus originated with Ashchur and his wife. Picus, the son of Saturn, who left Hermes as his successor, although, as the woodpecker, he is represented by Cos or Chons in the Egyptian Pantheon, at times designates Achuzam, whom we have found to be represented by Bochus and Bacchus. Pecus is a name of Thoth. He is also Jupiter Pixius, who is the same as Semo Sancus, the Egyptian Sem. Cacus and Acestes of Segesta are other names

[23] Strabon. Geog. xiii. 1, 21.

for Achuzam. The Aegestani of Sicily rightly connect with the mart Tyndaris. Casmenae of Sicily and Casinum of Latium are memorials of the first-born of Ashchur, together with Auximum of Picenum, and probably Picenum itself. Jehaleleel appears in Iolaus of Sardinia, Iulus, Tullus Hostilius and Jupiter Elicius; and his memory was preserved in the gens Lollia, Alalia or Alesia of Corsica and Halesia of Sicily. He is also Paltuce, the Etruscan Pollux. Guigniaut identifies Celeus and Picus, who are really father and son. Ziph survives in Capys, whose son Anchises is Anak. Capua and Sipous are also memorials of Ziph, while Copiae or Thurii unites his name with that of his brother Tiria. Servilius Ahala was the namesake of Asareel, the son of Jehaleleel. Arpi of Apulia may be a reminiscence of Arba. Hepher is Liparus, the son of Auson, with the prefix of the Arabic article. He is also Tiberinus, and the eponym of the Tiber, a western Hebrus, preserving something like the true form in its nymph Hybris. Februus and the Lupercalia with which he connects are forms answering to Tiber and Liparus, denoting the same son of Ashchur. Ocnus and Mantua, united with the story of Tiberinus, give Kenaz and Meonothai. The name of Hepher as Sephres, likewise survives in Sybaris of Lucania, situated between the rivers Sybaris (now Cochile, *i.e.* Jehaleleel) and Crathis (Zereth). It is recorded to have been founded by Achaeans under Iseliceus, who is no doubt Jehaleleel, a connection with which the reading in Strabo, Eliceus, does not interfere. Lucania overflows with Ashchurite names. Saturn is Achashtari, the eponym of Sethrum. Philyra, his wife, answers to Hilaira, wife of Castor, who is the Etruscan Kasutru. Taras, the founder of Tarentum, son of Poseidon and Saturia, is Zereth. He is also Corythus, who founded Cortona in Etruria, and Sardus, who, with Iolaus, his nephew Jehaleleel, colonized and named Sardinia, where Nora commemorates Naarah his step-mother, the Etruscan Nortia. Cures of the Sabines; the Curiatii; Mettus Curtius, who leaped into the chasm like Melicerta; Tarrutius, who married Acca Larentia; and the Quirites, will all be found to relate to the ancestor of the Cherethites and Carthaginians.

Romulus is Jerahmeel, and Remus Ram his son, Italus being Jediael the grandson of the latter, a Daedalus, the great-grandson of Enechtheus, as Jediael is of Jerachmeel. The Sabellian family, as I have already shown, is Shobalian or Horite. Thus three of the great

families of antiquity unite in the history of Italy, as they do in that of most historical peoples.

SPAIN.—Busiris is called king of Spain. I believe that the name Hispania, like Ispahan, comes from Heshbon of Moab, and that from Eshban, the Horite son of Dishon, who, as the brother of the wife of Esau, appears late in history. The name Spanius occurs in a list of Egyptian Pharaohs, next to Curudes or Zereth. The Vascones, Basques or Euskara are the descendants of Ashchur; the Tagus, Ategua, Itucci, Tukkis, and many similar geographical terms preserve the memory of Tekoa. The Iberus and Navarre may have taken their ancient and modern names from Hepher. Achashtari named the Astures of Biscay, and is Haitor, the god of the Basques; Carteia, Tartessus and the Turdetani represent Zereth.

CELTS OF GAUL, BRITAIN, &c.[29]—Ashchur is Esus, the divinity who answers to the Etruscan Æsar. In the British legends, Tegid, the man of the sea, is the Greek Tegeates and the Bible Abi Tekoa. Achuzam is the British Hu or Aeddon, who dwells at Seon, is called Buddwas, is a dragon and Typhon, famous like the Assyrian Hea for drainage, and the husband of Ked, who is also Ceridwen, Ogyrven, Eseye, a mare, and Ceres. He has been identified with Thoth or Teutates, who is Hesus and Buddha. As Hercules he is called Maguzan. The Osismii and many other tribes took their names from him. He led the Loegrian tribes, recalling Locrus of Phaeax, from Gafis in the east, which is Ziph. It is needless to say that the rites of Ceres and Bacchus, celebrated in Samothrace and parts of Greece, find exact counterparts in Britain. The Gallic Alesia, like that of Corsica, commemorates Jehaleleel, whose name remained in the British annals as Sisilius, the Kimarus or Kinmarcus who follows him being Zimran. He also named Avilion, the Elysium of the British Celts. Huail and many other mythic names denote the same person. Aganippus, whose name occurs with those of many Ashchurites in the chronicles of Geoffrey and others in the greatest confusion, is Anub. Hepher is Affaraon, a name of the high powers or Cabiri. The British Cunedagius and Dunwallo, with Scottish Kenneths and Donalds, and the Irish Conn, Connor, Cithneal and

[29] For the Celtic traditions I refer the reader to Davies' Celtic Researches and British Druids, the Chronicles of Geoffrey of Monmouth, Nennius, &c., Keating's Ancient History of Ireland, the writings of General Vallancey, the Black Book of Paisley, Buchanan's History of Scotland, and similar works.

Daniel, are Celtic forms of Kenaz and Othniel. The Irish Olioll is Jehaleleel, and Niull, Easru, Heber Scot and Gadelas, of the same history, are Penuel the father of Gedor, Ezra, Heber the father of Socho or the Sucathites, who are the Scyths and Scots, and Jekuthiel the father of Zanoah. A little labour spent upon the ancient annals of Ireland would furnish one of the most important contributions to the early history of the world. Uthyr Pendragon, the father of Arthur in the British traditions, is Jether, the son of Ezra, Arthur himself being Erythrus, Orthros, Rathures, Jordanus, perhaps Feridun and Pirithous—certainly Jered the father of Gedor. The Dumnonii may have taken their name from Temeni. Achashtari is the British Yssadawr, improperly made a name of Hu. He is also Sadurn, the man of the vessel, and Seithwedd Saidi of the flood at Savadan, which may be Sodom. Seithenin, the drunkard who let in the sea, recalls the story of Sesostris, to which allusion has already been made. Castor was long a recognized Gallic deity. The name Curaidh, or warrior, comes from Zereth, who is also the British Cadraith. The Tigurini were doubtless a branch of the Tocchari of Zochar. The Welsh, Irish and Scottish annals, the legends of the Round Table and the Paladins, together with the many unconnected tales of the ancient Celtic peoples of the three kingdoms, are neither works of imagination nor distortions of comparatively late historical events, but records, more or less corrupt, of the ancient period when the Ashchurites, afterwards dispersed over all the civilized world, began one of the most important parts of that world's history in Egypt and Palestine.

Germanic Peoples.[30]—The Ashchurites are the Æsir of the Scandinavians and Germans who came under Odin from Asgard. Their hero is Askr, or the ash, and he is also Tuisco, whose wife Nertha is Naarah. Irmin and Hermoder, connecting with him, must give us Harum, who, as Naram Sin, is made a son of the Assyrian Shagaraktiyach. Oscar, a well-known Teutonic name, is Usecheres or Ashchur preserved in its complete and original form. The Eddaic Hela may be the second wife of the father of Tekoa. Donar and the Tyndaridæ connect. Tuisto, who is Pluto, and the same as the Gallic Teutates and the Egyptian Thoth, is Achuzam. He is also called Sigy, but Odin is his most famous appellation. As Sigy or Sigge he is the

[30] For the German and Scandinavian Mythology and Antiquities, see Grimm's Deutsche Mythologie, Mallet's Northern Antiquities, &c.

father of Rerir or Scîld, who has been connected with the Phaeacians, and whose son Sceaf is Ziph. As Odin, his son is Baldur, who, like Scîld or Rerir, Ingialld the Ynglingian or Angle (like Anchiale from Nechaliel), Wala son of Bedwig, Ali or Wali, also son of Odin, Tell, Egill, the Helgis, and many other mythical characters, represents Jehaleleel, Salatis, Balot, Aroeris, Polydeukes, &c. Sigtuna, founded by Odin, bears a better form of his own name. Either he or his relative Jokshan named the Saxons. Valhalla, like Ahalu, Elysium, &c., is the land of Jehaleleel. Swava united with the Helgis is a form of Ziph or Sceaf. Of Hepher came the Kobolds. The Austrasian families, including Siegbert, belong to the family of Achashtari, who is Asa Thor, Saetere, Sitivrat, the husband of Ostara, and the eponym of the Ister, his mother being commemorated in the Noarus. The Goths are Shethites, Hittites or Cheta, men of Gath. Chrodo and Dagr may represent Zereth and Zochar. The goddess Ondurdis recalls the Indian Onderah and the Egyptian Denderah or Tentyra of the Tyndaridæ. Nanna, called the wife of Baldur, is Nana of Sangarius, Nanaia of Ormuzd and the Babylonian Ishtar. We have already found it probable that Jehaleleel married a daughter of Achashtari. Bragi, the god of learning and song, is, I think, Hepher. Ida, the plain on which Asgard stood, refers to the Idumaean region, near which the early Shethites dwelt. I cannot doubt that the Niflungs of the Niebelungen Lied are the posterity of Hepher, Gunther or Gunnar being Kenaz, Chandra, or Cheneres; and Otnit, related to the story, Othniel; while Atli or Etzel is the Egyptian Tlas, the Greek Daedalus, Tantalus and Atlas, the Roman Italus and the Jerahmeelite Jediael, whom I shall show in the history of that line to have played a very important part in the early annals of Egypt. From this same Jediael came the Vandals. The Germanic tribes, however, belong chiefly to the Ashchurite and related Midianite families.

VI.—TRACES OF THE ASHCHURITES AMONG SOME SO-CALLED TURANIAN PEOPLES.

China.—The name of the father of Tekoa survives in the Chinese annals as Te-kuh, whose sons were Te-che, a repetition of his own name, and Yaou.[31] Yaou is plainly Achuzam, and the Aos or Hea of Babylonia, the British Hu. He was a sage; the vision of a red dragon preceded his birth; and in his reign the great deluge took place. Yu, a

[31] Gutzlaff's Sketch of Chinese History, Ancient and Modern. London, 1834; vol. ii. 119 seq.

successor, according to the Chinese historians, but who really is the same person, connects with Hea and Hu as the patron of drainage. Temang may be a reminiscence of Temeni. Shun, who succeeded Yaou, may be Achashtari. He was a great lawgiver, like Sesostris; and the attempts of his father and brother, whom he freely forgave, to destroy him by fire, find their counterpart in the history of the Egyptian monarch. Ming-teaou, where he died, is a reminiscence of Mendes; Ming-ti, the monarch after whom it was named, being Manahath. Fohi, the Chinese Buddha, is the same as Yaou, the head of the Hea dynasty; and Kolakealo his son is Jahaleleel.[32] Sir William Jones identified the Chinese with the Kshetriyas of India; and the statement of Sadik Isfahani, that Chin and Khita are one and the same, agrees with this, the Khita being the Hittites or Shethites of Achashtari.[33] In the Chin we may find the Kenites that came of Hemath.

America.[34]—The Chinese Ming-ti is reproduced in the Algonquin Manitou and in the Peruvian Manco, as I have elsewhere stated. Shobal, the father of Manco or Manahath, is the Peruvian Supay, answering to the Egyptian Seb or Sebek. As in the Arabian and connected mythologies, he is the chief of the evil spirits, so that the Horite line must have been inimical to that to which the ancient population of Peru belonged. Accordingly we find the monarchs of that country denominated Incas, a term which has been frequently connected with the Palestinian Anakim and the Greek Anactes. Among the Incas, as given by Montesinos, many Ashchurite names appear, such as Huascar, Huacos, Huillaco, Topa, Huacapar, Ayatarco and Marasco; denoting Ashchur, Achuzam, Jehaleleel, Ziph, Hepher, Achashtari and Mareshah. Among geographical names, Cuzco, the chief region in the Peruvian annals, with Scyris or Quito, commemorate Ashchur; Titicaca and Totacacha, Tekoa; Pachacamac, a kind of Phacussa, Achuzam; Huahualla, Jehaleleel; &c. The name Peru, originally designating a river, may not improbably have come from him who was the eponym of the Hebrus, Tiber, and many other streams. The great deity Pachacamac, or Con, opposed to Supay, is Achuzam; and, under the form Huaca, his name became a synonym for divinity. It is also worthy of note that

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32 Max Müller Chips. 1st Series; Essay X.

33 Sadik Isfahani, Orient. Trans. Fund. London, 1832; p. 46.

34 See the Peruvian Antiquities of Rivero and Tschudi, translated by Dr. Hawks, New York 1853; Humboldt's Monumens de l'Amerique; Prescott's Mexico and Peru; Baldwin's Ancient America, &c.

Huaca denotes, like Busiris and Sakkarah, a place of interment. The deluge happened in the time of Pachacamac. The Ayllos of Peruvian monarchy and the Conopas or minor deities take their names from Jehaleleel and Anub respectively. Lescarbot heard the Indians of South America sing "Alleluia," which was, no doubt, a transported Ailinus or Ya laylee. Mexico is the land of Anahuac, or the Anakim. Its divinity Ho, or Votan, is the Celtic Hu, or Aeddon, who is the German Odin, or Woden, as Humboldt has shown, and the Ashchurite Achuzam. Votan is connected with the story of a great deluge, like the Babylonian Aos, the Persian Yessun, the Indian Vasu, the Greek Ogyges, the Celtic Hu or Aeddon, the Peruvian Pachacamac, and the Chinese Yaou. This is no mere verbal coincidence. Teotl, the great spirit, also called Tlaloc, and by whose name the Teocallis or Mexican temples were called, is Jehaleleel. There is a striking likeness between the latter and the pagodas of India. The pagodas took their name from the prefix of the Coptic article or an abbreviated Beth (house) to the name of Gotama or Achuzam, the father of him whose fame survived in the Teocallis. The Peruvian Huillacs or priests by their name answer to the replacement of Buddha by his son, Ila or Kolokealo. Yucatan, which preserves a very complete form of Achuzam's name, also had its Teocallis. The American pyramids, the practice of mummification, with many other monuments and customs, serve to connect the ancient inhabitants of Central and South America with those who ruled as the Shepherd kings over Egypt. The Aztecs may preserve the name of Sydyk or Achashtari, the people of Guatemala that of Othniel, the Chiapas that of Jabez, and even the emigrating Tuscaroras, or white Indians, as they used to be called, that of Ashchur, the head of the Dioscuri. Before leaving the geography of America I must mention the Ucayali river of Peru as a cis-Atlantic Acheloüs, or Khulil. The purity of the American traditions, even as compared with the Chinese, as far as the forms of names are concerned, leads me to deem it possible that the ancient ruling stock of Mexico, Peru, &c., may have entered these countries from the east, coming from the Basque, Euskara, or Ashchurite region of Spain.

VII.—THE ASHCHURITES IN PALESTINE.

As Ashchur is called the father of Tekoa, it is natural to suppose that he really dwelt in the region known afterwards as the desert of

Tekoa, to the west of the Dead Sea, and south of Bethlehem. Near it we find the land of Hepher, the wilderness of Ziph, Maarah, Halhul, Chezib, Kirjath Arba and other places, the names of which relate to the Ashchurite story.[35] Here he must have subdued the Hamitic Hittites, making them subjects, perhaps Helots, yet retaining their name, as the conquerors of many lands both in ancient and modern times have done. Ephron his grandson ruled the Hittites of Hebron in the days of Abraham, so that we must place Ashchur two generations earlier than the interview between the Hebrew patriarch and the son of Zohar. As the concurrent testimony of the Bible and profane records establishes the longevity of the men of that period, Ashchur may have flourished at the time of Abraham's birth, 137 years before. We may at least suppose him to have been the father of Tekoa a century before his grandson Ephron became prince of

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[35] Dr. Hyde Clarke, in his valuable paper on the Relations of Canaanite Exploration to Pre-Historic Classic Archaeology, published with the October (1871) Statement of the Palestine Exploration Fund, identifies the following Ashchurite names of places with corresponding terms in the geography of Caucasia, Armenia, Asia Minor, the Greek Islands, Greece including Thrace and Macedonia, Italy and Spain. I mention a few only out of a very large number given by Dr. Clarke:

Ashchur as Sihor.—Sacora of Cappadocia; Sycyrium of Thessaly; Schera of Sicily; Dascyra of Armenia; Scyros; Sicaraca, Secerrae and Sycron of Spain.

Tekoa.—Dicaea of Thrace; Tegea of Arcadia; Attica; Othoca of Sardinia; Tucci, Tygia, Attacum and Attegus of Spain.

Naarah as Naarath, Naaran.—Nora of Cappadocia; Nariandus of Caria; Narona of Illyria; Nora of Sardinia; Neretum of Apulia; Nardinium of Spain.

Achuzam as Shahazimah, Azem, &c.—Oesyme of Macedonia; Segisama of Spain; Assos of Mysia; Cissa of Pontus and Thrace; Casos; Hysiae of Argos; Agasus of Apulia; Casinum of Latium; Assissium of Umbria.

Hepher.—Cabeira of Pontus; Cibyra of Pisidia and Cilicia; Euphaera of Thessaly; Cobrus of Thrace; Cyparissia of Arcadia; Capraea and Cupra of Italy; Capara of Spain.

Temeni as Temani and Timnath.—Timena of Paphlagonia: Domana of Pontus; Tymnos of Caria; Tymna of Armenia; Temnos of Mysia; Thymnias of Caria; Taminae of Euboea; Idomene of Acarnania and Macedonia.

Achashtari as Ashteroth.—Asdara of Cappadocia; Sataros of Lycia; Astyra and Setara of Mysia; Sotira of Pontus; Ostrus of Phrygia; Stiria of Attica; Saturnia of Etruria; Ostra of Umbria; Astura of Latium; Sutrium and Pistoria of Etruria.

Zereth as Zaretan, Zared, &c.—Sardis of Lydia; Saratra of Lycaonia; Sarta of Macedonia; Sardene of Caria; Sardeva of Armenia; Zortane of Thrace.

Jehaleleel as Halhul, Nahaliel, Gilgal.—Halala of Cappadocia; Halias of Argos; Elis; Elea of Lucania; Alia of Spain; Ali of Cilicia; Nacoleia of Phrygia; Anchiale of Thrace; Golgoi of Cyprus; Aegila of Laconia; Chalia of Boeotia; Œchalia of Thessaly and Aetolia; Chalcis of Euboea, &c.; Halicyae of Sicily; Ocilis of Spain.

Ziph.—Siva of Cappadocia; Sabus of Armenia; Zoba of Pisidia; Siphon of Boeotia; Siphaeum of Bruttium; Savia of Spain.

Anub as Anab, Nebo, &c.—Anave, Nepea and Anabon of Phrygia; Niobe (? Zobebah) of Lydia; Aenope of Laconia; Anaphe, Onoba and Anabis of Spain.

To the same paper I refer for identifications of Mareshah, Hamath, Rekem, Tappuah, Arba, Hebron, Jabez, Charashim, Ethnan, Shema, Kenaz (Kenath) and other Ashchurite names.

Hebron or Kirjath Arba. Previous to his time, or coincident perhaps with the beginning of his Palestinian sovereignty, two migrations to Egypt had taken place. One of these was led by Shobal the Horite, from the mountainous district that lay between the Dead Sea and the Ælanitic Gulf, or, since Shobal is called the father of Kirjath Jearim, from the similarly hilly region in which a city of that name was afterwards found in the possession of a Gibeonite or Hivite family. It is hard to say which was the first settlement of the Horites. I think it probable, however, that as they came with the westward tide of emigration from the land of Shinar, they must have entered Palestine from the north, and thus have dwelt first in Kirjath Jearim, Mount Hor forming an intermediate stage on the way to Egypt. Manahath, the second son of Shobal, took possession of the Mendesian nome; his brother Onam, moving southward, founded On, or Heliopolis; and Jachath, the son of his elder brother Alvan or Reaiah, established a kingdom in the neighbourhood of Memphis, whence his son Achumai was driven to Chemmis, in the south. This was the Egyptian dynasty of the Auritae. The second migration was that of the father of Etam, an "Etam of that ilk," who left a region situated probably not far from Bethlehem, and became the eponym of the wilderness on both sides of the Red Sea, opposite Heliopolis, in which the later city Pithom commemorated him. As Shobal, Reaiah and Manahath became the gods Seb, Ra and Month, so he was honoured with divinity as Athom or Atmoo. His eldest son Jezreel probably exercised sovereignty in the neighbourhood of Heliopolis or Memphis, and was known as Osiris. Then Ashchur, with his sons, entered the land of the Pharaohs. At first they contented themselves with the Sethroitic region to the east of Manahath's domain, keeping up communication with Palestine, in which, probably about Gerar or Elusa and Gaza, they left settlements, by means of the maritime tract of the Sirbonis Palus. All records combine to make them the first men of the sea, so that their supremacy may at first have arisen from their power of maintaining a water communication where one by land was difficult or impossible. At first they seem to have been subordinate to the Horite monarchs of Mendes and On, Antaeus and Busiris, Onnos and Usecheres living together in harmony. It is questionable if Achuzam ever moved out of the region of Casium, although there are reasons for finding his last home in Gizeh. His brother Achashtari certainly took Heliopolis from

Onnos or his son, and became the chief ruler in Egypt as Sesostris. With him Achthoes or Jachath, the son of Reaiah and nephew of Manahath and Onnos, was for a time confederate, and his son Achumai, or Kames, sat during the early years of his life upon the throne of Memphis. Another son of Ashchur, Hepher, was on friendly terms with Onam, married his daughter Taia, and lived apparently at the court of his father-in-law. His son Kenaz took the Horite *ra* into his name, and his descendants, fleeing to the south when the Horite line was expelled, became the Stranger kings, or Disc-worshipping dynasty. Zereth ruled somewhere in Lower Egypt, probably not far from Pelusium, as Curudes; while Zohar seems to have remained in Palestine, probably in possession of the ancestral seat near which his son Ephron exercised princely power. It was in the time of this Ephron that Abraham dwelt in Southern Palestine. In the extreme south, at Gerar, he found a Philistine kingdom under Abimelech, whom we have already identified with Jehaleleel, the son of Achuzam. It is not improbable that Achashtari had assigned this fertile and once beautiful region, which gave name to the heavens of many peoples, as Ahalu, Avilion, Valhalla, Kailasa, Elysium, Coelum, &c., to the son of his elder brother and husband of his own daughter. It is not impossible, however, that Jehalaleel was driven from Egypt by the same uncle, and that the fact was commemorated in an ancient song, part of which was, "How art thou fallen, Helel, son of Shachar or Ashchur!" At any rate he made up his mind to be the conqueror of Egypt. For this purpose he raised a considerable army, the general of which bore the Egyptian title Phichol, and made treaties of peace with surrounding peoples, including Abraham, one of the most important nomad chiefs of Southern Palestine. Leaving a successor, perhaps one of his sons,[36] on the paternal throne, and thus securing a retreat in case of failure, he advanced upon Egypt, driving the Horites into the south, and Beor, the son of his uncle Achashtari, into the eastern desert, whence his son Bela, passing into the region which afterwards fell to Edom, became its first king and the head of the Shethites, who united with the children of Moab on the eastern

[36] That this successor belonged to the family of Achuzam is, I think, plain, from the fact that his friend was Achuzzath, bearing a name almost identical with that of the son of Ashchur. Yet he must have been two generations later at least. This Achuzzath may have been, in some way, a grandson of Achuzam. His name is peculiar in form, and can hardly belong to any other family. As no doubt a Hittite, it is interesting to find Elon and Beeri in all probability contemporary with him. Elon was very probably a grandson of Temeni.

shores of the Dead Sea.[37] Meanwhile Ammon, born in the latter country, had entered Egypt, perhaps as a soldier of fortune under Jehaleleel, whose contemporary he was. To him Jehaleleel seems to have entrusted the government of the Libyan region to the west of the Delta, and there his son Coz, who married Ziphah, the daughter of Jehaleleel, ruled. The offspring of this marriage was a son and daughter, the former the famous Anub or Anubis, the latter Zobebah, who is, I think, Bubastis. At the death of Jehaleleel or Salatis, his eldest son Ziph or Kufu or Cheops became monarch of all Egypt, and built the great pyramid. I hardly think that Anub was his successor in the sense of ruling the same wide dominion. A new line now appears, that of the Jerahmeelites, who, leaving Southern Palestine, had taken up their abode about Memphis, which was probably named after Jamin, the son of Ram, and grandson of Jerahmeel. The region of Ramlieh, opposite Memphis, commemorates Jerahmeel, and from his son was derived the later name Rameses. Jerahmeel must have been a contemporary of Shobal, as his wife was the mother of Onam, also called a son of Shobal. Jediael, the son of Jamin, whose name survives in Jendeli, in the Ramlieh region, and who is the Tlas or Thoules or Theoclymeus of Egyptian monarchy, as well as the Memphite Daedalus and the Lydian Tantalus, was, I think, *a* husband of Zobebah, and the father of Jabez or Apis.[37*] He was killed apparently before the birth of his

[37] Contemporary with Abraham and Jehaleleel we find Melchizedek, king of Salem. He must, I think, have belonged to the Ashchurite family, which, more than any other (as in the case of the Abimelechs), seems to have possessed a knowledge of the true God. The names Sydyk, Soutech, &c., are so closely identified with the Shepherd line, and especially with Sheth or Achashtari, that it is quite possible this priestly monarch may have been a child of the fourth son of Naarah. Agreeable to this are the statements of Cedrenus and Michael Glykas, which make him a son of Sidos, the son of Ægyptus, the latter name denoting his Egyptian origin. In Epiphanius he is made the son of Heraclas and Astaroth, the name of his mother being a link to bind him yet more closely to the line of Achashtari. Remains of the Sheta have been found near Jerusalem, and the plain of Moab lays claim to the sepulchre of Achashtari himself in Neby Sheet. If we are to credit the connection of Zereth with Melcartus, Melicerta, &c., it shows that the prefix of the royal designation Melek was not an uncommon thing among the Ashchurites. The first-born, Achuzam, and his line give us Abimelech; Zereth is Melek-Zereth or Melcartus; and Sydyk is Melek-Sydyk or Melchizedek. The Moloch of Ammon, so intimately allied with this line, may have been derived from such a use of the word. It may also afford us a harmony of the names Amalekites and Shasu applied to part of the Shepherd stock. The country of the Amalekites, therefore, which was smitten by Chedorlaomer, may easily, from its position near Enmishpat or Kadesh, have been the land of the Achuzamites, who would otherwise have escaped the invasion of the Elamite king.

[37*] While there is much evidence for the connection of a Jediael with Zobebah and Jabez, it is utterly impossible to reconcile the chronology that places Jerahmeel in the time of Shobal with that which makes his great-grandson the son-in-law of Coz. I am therefore disposed to leave the parentage of Jabez an open question for the present, until the whole subject of the Jerahmeelites is discussed.

son, so that Zobebah bore Jabez with sorrow. Under Jediael we find Mareshah, the father of Hebron, who is Marsyas, the companion of Cybebe, Marekho united with Thoules, and Moeris, the guardian of young Apis or Apophis.[37**] Under his wise administration Jabez lived for many years until the advent of Joseph, who became his prime minister, and instructed him in the true religion. We have thus six generations of Pharaohs from Usecheres to Jabez. I have not yet been able positively to identify the successors of Jabez among the so-called Shepherds. They cannot, however, have included more than two generations. Then a Horite element in the line of Lotan, combining with the Hepherites and the family of Jerahmeel, taking advantage of the Shepherd dissensions, drove them out of Egypt back to their original home in the land of Palestine. Long before this the descendants of Onam had been expelled to Arabia Petraea, whence they afterwards found their way to Babylonia. It is probable that the descendants of Zereth continued, during the rule of the other Ashchurites in Egypt, to occupy the coast of the Cherethites from the borders of Egypt to Gaza, and that, during the troublous times of the expulsion of the Shepherds, some of them removed to Zareth Shahar and Zaretaan, in the neighbourhood of the Jordan. In the latter region, more than one place known as Fokaris also denotes the presence of the allied Tocchari or Fekkaroo. To the north of these, in the land of Gilead, we find traces of the family of Ezra and Penuel, Jaazer deriving its name from the former.[38] It is, however, impossible at present to say at what period the founders of

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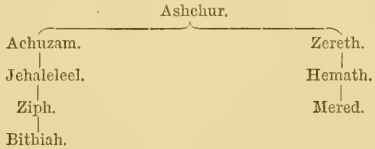
37** Here again I am in doubt, for Marsyas, as son of Œagrus, seems to be Mered, son of Ezra.

38 The family of Ezra must connect with one of the sons of Ashchur by Helah. The connecting link is Hemath, the father of the house of Rechab. Now Hemath is the head of the Tirathites, Shimeathites and Sucathites, and these are Kenites. The Sucathites are of the family of Heber, the father of Socho (I. Chron. iv. 18), and Heber is a Kenite name (Judges iv. 11). The Shimeathites and Tirathites do not certainly appear among the connections of Heber. But in the neighbourhood of the Palestinian and Syrian Hamaths, we find Ezra represented by Hazor and Jazer; Jether by Ituraea, with many corresponding ancient names; Mered by Marathus and Moerad; Jered and Gedor by Aradus and Gadara; Socho and the Sucathites by Succoth; while Tarichaea, Summuk, Samachonitis, and similar words occurring as names of places in the same region, designate the abode of the Tirathites and Shimeathites. The region also is Kenite, for there Heber the Kenite dwelt. Among the names of this region many reminiscences of Zereth are to be found, such as Kartan, Kartah, Zartanah, &c. But Zereth, with Zohar and Ethnan, connect with the family of Bethlehem in Helah, their mother, who was probably a daughter of Salma, the father of Bethlehem. It is to this family of Bethlehem accordingly that Hemath is said to have belonged. In the region west and south of Bethlehem all the names already found in the neighbourhood of the sea of Galilee and northward are also to be found, with the exception of Hamath, denoting perhaps the first Palestinian settlements of the family of Ezra. In the ethnic connections of Hemath his Ashchurite relationship appears. As Amythaon, he is the son of Cretheus or Zereth; and as Aemathion, of Tithonus, Laomedon, the father of the latter, being, I think, a repetition of the name of his grandson.

Gedor or Gadara, Succoth, Moerad, &c., established themselves in this region. Og, the king of Bashan, probably belonged to this Scythian family, whose first settlements seem to have been in Southern Palestine. The Shethites dwelt with the Moabites and Midianites[39]

Tithonus may be Ethnan. In the British genealogies Amathaon is a son of Don, so far agreeing with the Tithonus connection. But Æmathion is also called a son of Astraeus, who is Achashtari, and of Aurora, the daughter of Hyperion, who is Hepher, thus still exhibiting Ashchurite relationships. The Babylonian Kimmut, who connects with Hea, may be Hemath, and thus still declare his Ashchurite origin. He is the Assyrian Samdan or Adar, the latter word giving Ezra. With this the connection of the British Adur and Amathaon agrees. The Scandinavian Heimdall born of nine mothers, the nine springs of the Greek Hymettus and the springs of Hamath-Dor, tell the same story. He must be the Egyptian Eimopth or Imouthes, who is the god of medicine, recalling the medical family of Amythaon, and with whom Tosorthus, the first physician, whom we have already identified with Zereth, must connect. Tosorthus was also a scribe and a builder with hewn stones. Homtn is the name of a prince of Egypt who lived in the reign of Sephuris or Hepher, and who may be Imouthes or Hemath. The Rudras and Maruts of Ushas and Surya, Jereds and Mereds of Hushah and Ezra, are, like the families above named, physicians. Himavat should connect with them. Hemath is Amenti and also Rhadamantus, his son Erythrus being Jered the father of Gedor. From him the Imaus or Emodi mountains took their name. They were originally the mountains of Hamath. It is possible that Ezra and Hemath are names of the same person, or that Ezra denotes his wife. If prince Mourhet or Mered married a daughter of Suphis this is probable.

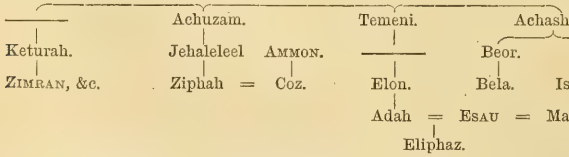


The relations of the Kenites among the tribes of Palestine, &c. were with the Amalekites (I. Sam. xv. 6), and with the Midianites (Exod. ii.), and both of these are Ashchurite families. The Gezrites (I. Sam. xxvii. 8), who are spoken of as old inhabitants of Southern Palestine with the Amalekites, probably represent the descendants of Ezer or Ezra.

[39] Although I propose devoting another paper to the history of the children of Abraham by Keturah, as they have been alluded to in this article I may state a few of the connections of Zimran with the family of Achuzam. The Homeritae of Arabia are distinctly said to have been the descendants of Keturah. Their name is derived from Zimran, the eldest of her sons. His name, meaning "mountain goat" and "song," agrees etymologically in the first signification with the Chimaera of the family of Typhon, in the second with the Homerid family of Smyrna. The Homeritae descended, according to other Arabian traditions, from Himyar, who is called Ghazahadj, or Achuzzath; and he is the Persian Kaiomers identified falsely with Gilshah or Jehaleleel. In him also we find the Babylonian king Zmarus; perhaps the Phœnician Demaroon; the British Emrys or Ambrosius, head of the Cambrians or Cymri; the Scandinavian Ymir, ancestor of the Cimbri or Cimmerians; the eponym of Ambracia, Imbros and other places of like name, such as Smyrna, as well as of the fabulous Chimaera, within the Greek area; and the father of African Cumbrians and the Umbrians of Italy. In every case those names will be found intimately connected with those of well-known Ashchurites, principally in the line of Achuzam. So important a member of this family was Zimran, that frequently, as in the case of the Arabian and Persian traditions, he is confounded with his uncle and grandfather. The megalithic structures called Stonehenges, as found in Arabia, Britain and other parts of the world, are associated generally with the name of the eldest son of Keturah. Abundant proof for the statement that the hero of many mythologies is really Zimran, and not a distinct person of similar name, is found in the association with his of the names of his brothers Jokshan, Midian, &c., and their children, Dedan, Ephah, &c., as well as in the Arabian connections of the Katoorah and the Azdites or Amalika. He may be the Egyptain monarch Lamares, Lampares or Ameres of Manetho's twelfth dynasty.

in Shittim, on the borders of the Dead Sea, but they also formed the principal part of the confederacy on the coast of the Mediterranean known as the Phili-Sheth or Philistines. When the descendants of Jehaleleel were driven out of Egypt, they must have removed at first to their original seat at Elusa or Gerar, and thence have spread northward to Ziph. The family of Tiria, however, would seem to have crossed the Dead Sea, and between the Nahaliel and the Zerka—not far probably from Callirhoe, which, with its hot springs near at hand, gives us the true Homeric locality—founded the city of Ilium. In another paper I hope to be able to prove conclusively that here the long Trojan war was fought, during the time of Israel's captivity in Egypt. When the Caphtorim or Dorians, descendants of the Horite Achumai, came out of Egypt, they drove up the descendants of Achuzam into the region about Carmel, where the Etamites in the line of Jezreel were already established. The families of Achuzam occupied Accho, Achzib, Achshaph and other places on the coast, even in the days of the Judges of Israel, the Caphtorim dwelling in Dor, Endor, and other towns south of Megiddo, a Hycsos region. It was from Palestine, then, and not from Asia Minor, Greece or Greek Islands, or Italy, that the Achaeans and Laconians, Mysians and Dardanians, Cretans, Sardinians and others, whose record is found on the monuments of the Thothmes and Rameses, invaded the land of the Pharaohs, together with Heth and Sheth, Moab and Ammon.[40] These were the families of Ashchur, or the Shepherds

[40] It will be observed that while I have found the descendants of Ammon and Midian in relation to the Shepherd kings, Moab's family has not been noticed. As Ammon's son Coz married a sister of Ziph, the son of Jehaleleel, it is not improbable that Mesha, called the father of Ziph, may be a son of Moab, seeing also that the name Mesha remained in the royal line of the Moabites. In Moab we must, I think, find the Egyptian Hapi Mou, which is an inversion of his name. He may also be the Arab Moafer, answering to the Moabrisi of the Egyptian monuments, who is united with Nooman or Ammon in the lists of Arabian monarchs. I would also be disposed to see in him the famous Amphion of Thebes. He certainly is the Thessalian Mopsus; and Mopsopia, an old name of Attica, with Mopsium in Thessaly and Mopsuestia in Cilicia, exhibit the progress of his descendants. Ampyx, Ampycus and Amphictyon, like the Egyptian Gnephactus, are probably names of Moab. He may be Noub, who married Sate or a daughter of Achashtari and sister of Beor, whose son Bela, fleeing to his brother-in-law's dominions, became the Baal Peor of Moab. The fable of Niobe undoubtedly connects with the Moabite line. The following exhibits the probable connection of the Abrahamic family with the Ashchurites:



The Ishmaelites connect, at least in Nebaioth, with the family of Jerahmeel, and Esau had other, Horite and Ishmaelite, alliances in addition to that with the family of Temeni.

who had formerly ruled in the country which they now invaded. Did time permit, it would be a simple matter to show the identity of their costume, armament, modes of warfare, government and worship, with those described in the heroic stories of Greece, India, &c. The Bible narrative, the Egyptian and early Assyrian and Babylonian monuments, afford scraps of information concerning these Ashchurites, subsequent to their return to Palestine, and previous to their dispersion to the north, east and west, which not only illustrate, but confirm, even to minutiæ, the accounts given by Greek, Indian and other early histories that have been deemed purely mythical, of the movements of the Ashchurite tribes in the latter part of the heroic age. The earlier part of that age belongs principally to Egypt. Northern Africa has its own history of migration, as the legends of Rome and of the Celtic peoples testify, but for the verification of these in their particulars we have no such evidence as is afforded in the case of Palestine. Here ethnology must take the place of history to a great extent. It is a remarkable fact, and one that explains the prevalence of certain Israelitish customs and the existence of fragments of revealed truth among Gentile peoples, that the germs of all civilized nations were to be found, some of them till the tenth century before the Christian era, dwelling in intimate contact with the descendants of Jacob. The transition period to which belong the migration of the Dorians and the return of the Heraclidae, was that which immediately preceded the entrance of the tribes of Israel into the land of promise, the wars which marked it being a preparation for an easier conquest of the country by those to whom it was divinely apportioned. Joshua and his host, however, met no hordes of effeminate and undisciplined Canaanites, but all the chivalry and prowess of the ancient world. The so-called myths which identify the Palestinian Nyssa, Ascalon, Joppa, Accho, and other places with the scenes in which the deeds of great heroes were wrought, are in the main narratives of fact.[41]

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[41] Already it must have appeared to the candid reader that the connections established in this paper do not rest upon mere nominal identities, although these, as extending to many generations and relationships, are of themselves sufficient confirmation of their truth. Many remarkable resemblances in the facts handed down concerning the members of the Ashchurite family in different communities attest the connections made, in a manner appealing more directly to those who are not in the habit of weighing philological evidence. The Ashchurites are persistently mentioned as the men of the horse and of the sea. The tradition of a deluge belongs almost exclusively to them. One has but to read Mr. Cox's admirable chapters which treat of mythological serpents and dragons to see that in the Ashchurite Achuzam all of these

A new era in history has arrived; a foundation is laid for true systems of ethnology and philology; a false interpretation of mythology, with the very name *mythology*, is overthrown; and the Bible still proves itself, as it has ever done, among books incomparable, the great source of historic truth, alone Divine. The key to ancient universal history lies in the first eight chapters of the long-despised, or at least unhonoured, First Book of Chronicles; and the right use of that key is destined to afford a new revelation of God in His dealings with the nations of the earth. With unfeigned pleasure and deepest gratitude I place these results of its use in the hands of those students of history whose knowledge and resources will enable them to turn both it and them to the best account for the perfection of historical science, and for the vindication and elucidation of the inspired Word.

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unite. To him also in several mythologies drainage is attributed. His brother Hepher appears continually as the man of letters and science. Lightning is frequently connected with the name of Jehaleleel. The whole family is Typhonian. It is also funereal and sepulchral. Its members name mountains, rivers, trees, metals, winds, planets, months and days in many countries and languages. Religious mysteries are peculiarly characteristic of the Ashchurites in lands wide apart. Pyramids, Stonehenges, and other megalithic structures in various regions, owe their origin to these early builders. Opposition to a Horite line appears in the majority of their traditions; and a large number of these have their scenes placed unmistakably in Egypt and Palestine. When to all of these we add geographical and chronological harmonies, the reduction to unity of wide-spread myths that must have had a common historical origin, and the agreement of all the facts recovered with the Bible story, it seems impossible that any cultivated mind, capable of appreciating the evidence afforded, should resist the conviction that the conclusions of this paper are, in the main, the truth concerning ancient history.

NOTE ON THE CAUSE OF TIDES.

BY E. J. CHAPMAN, PH. D.

PROFESSOR OF MINERALOGY AND GEOLOGY IN UNIVERSITY COLLEGE, TORONTO.

[*Condensed from a Communication made to the Canadian Institute, February 7, 1874.*]

The phenomenon of the tides, stated broadly, consists of a passing elevation, real or apparent, of oceanic waters at two opposite points on the surface of the globe. These elevations, which follow the moon in its course, may become greatly intensified under local conditions, as where opposing coast-lines impede the progress of the tidal wave; but in the open ocean, it is well known, they are of but slight significance. According to the received theory, they are occasioned essentially by the unequal degree of attraction exerted by the moon on different parts of the earth—this attraction being, of course, modified by that of the sun. It is thus assumed that the waters, owing to their comparative mobility, are drawn towards the moon on one side of the globe, whilst the solid earth is drawn away from the waters on the other side—or, to use the common phraseology, is drawn towards the moon faster than the waters can follow.

This view, although not without opponents, has been almost universally adopted in default of a more satisfactory explanation.

The explanation of the cause of tides now suggested has at least this merit: it applies the same principle in elucidation of both tides —that nearest the moon, and that on the opposite side of the globe. It is briefly this:—When two bodies pull against each other, there must necessarily be a contraction of particles towards the centre of each body along the line of pull or resistance. In the pull, therefore, of the earth upon the moon, the earth (and of course the moon also) must suffer a passing contraction: the part along the line of pull, so to say, contracting more than the other parts. But this contraction is mechanical only, and is therefore a compression; and as water is practically incompressible, the sea remains essentially unaffected, whilst the earth shrinks beneath it, and thus causes the tide. The

shrinkage of course becomes greater, and the tide higher, when both sun and moon take part in the counter-pull, whether acting on the same side of the earth or on opposite sides. It may be assumed, however, from the known height of the tidal wave where the march of this wave is unopposed, that the maximum amount of contraction does not exceed a foot for each thousand miles of the earth's radius—being thus, in round numbers, less than one part in five millions. In the tremendous pull of the earth upon the moon, by which the moon is kept upon its course, a passing contraction of this comparatively slight amount may be easily conceived to follow. According to the commonly adopted theory, one tide is assumed to result from the withdrawal of the earth, locally, from the waters above it: in the view now proposed, both tides are assumed (although on a different principle) to be thus caused.

NOTES ON THE FLORA OF HAMILTON.

BY J. M. BUCHAN.

In laying before this Society the list of Canadian plants which is appended to this paper, and in directing your attention to a few of the more interesting facts connected with the botany of Hamilton, I desire it to be understood that my object is mainly memorial. The late Judge Logie, who was, I believe, for many years a member of the Canadian Institute, devoted a portion of his leisure hours, during the latter part of his life, to making a collection of dried specimens of our indigenous and naturalized plants, and I deem it only just to his memory to make known to the limited circle of those who take an interest in botany how much he has done and how well he has done it. I derive a sort of right to act as his botanical executor from the understanding that existed between us for some time previous to his decease that we should jointly work up and publish a complete flora of Hamilton; and as death has prevented him from fulfilling his part of our mutual design, I take a pleasure, though a melancholy one, in showing what he had done towards carrying out his share of the agreement. I have also been incited to lay before you a list of the specimens contained in Judge Logie's collection, by the hope that it might be of use to those gentlemen who have announced their intention of publishing systematic expositions of the flora of Canada; and I have for the same reason added a supplementary list of plants not contained in Judge Logie's list, which have come under my own observation. Besides the announcements above referred to, made by Professors Macoun and Gibson of Belleville, and Dr. Ross of Toronto, it has given me much pleasure to notice other signs of an increasing interest in the study of botany, and particularly to learn that there are some in this Society who devote themselves to the most charming of the sciences. Although the knowledge of this last fact causes me some trepidation, when I reflect how incomplete the list is which I lay before them, I venture

to assert that an incomplete list is better than none at all, and that if all the observers in Canada who have made more or less complete collections in the localities in which they reside would summon courage to contribute the results of their observations to a common fund, our knowledge of the distribution of plants in Canada would be materially increased, and the study of our local floras greatly stimulated. Our knowledge of the distribution of Canadian plants is indeed so limited, and geographical botany is so important a subject in its relations on the one hand to climate, and on the other to the vexed question of the origin of species, that one may be excused for feeling, and pardoned for endeavouring to excite, an interest in it.

There are in Judge Logie's collection, exclusive of duplicates, 676 Canadian plants, of which 597 are indigenous and 79 naturalized. How carefully he pressed and how neatly he mounted his specimens may be judged from those which I now exhibit to you; and I believe that he was equally painstaking in his determinations. Of course, in so large a collection, there must be some errors in naming, and in the list which I have made, I have ventured in one or two instances to express my disagreement with his determinations; but, though I have not had time to examine carefully many of the plants, my impression is that the proportion of errors is very small. Of a number of the most common plants, with the occurrence of which Judge Logie must have been perfectly familiar, the collection contains no specimens. To remedy this deficiency, I have prepared a supplementary list of plants, which I am able from my own observations to add to his list. The majority of the additional plants are of common occurrence, but some are rare; and one or two, of which specimens will be exhibited at the conclusion of this paper, are, it is believed, reported as Canadian for the first time. The additional list contains 136 plants, of which 113 are indigenous and 23 naturalized. There are, therefore, on the two lists, 710 indigenous and 102 naturalized, in all 812 plants. I have marked with a B those plants in Judge Logie's collection which I have noticed in the vicinity of Hamilton, and independently determined. There are 442 so marked; and, accordingly, of the 812 plants, the occurrence of 442 is vouched for by Judge Logie and myself, while that of 234 depends on the correctness of Judge Logie's, that of 136 on the correctness of my determinations. The total of 812 does not include all the phaenogams and vascular cryptogams that have been observed to occur at Hamilton. In the

extensive collection made by the late Mrs. Smart, sister-in-law of Judge Logie, and a most enthusiastic botanist, there are some—probably a good many—plants not included in the lists which I lay before you on the present occasion. If at some future period I should have the time and the opportunity to examine her collection, I may be able to increase considerably the list of Hamilton plants.

On classifying the 812 species and varieties included in the two lists, we find that there are 649 exogens, 121 endogens, 41 acrogens, and 1 thallogen (*Chara vulgaris*, L.). The disproportion between the exogens and endogens would be less if the rushes, sedges and grasses were thoroughly worked up. Thirty-eight of the plants have been collected in parts of the Dominion remote from Hamilton, principally near Cacouna and London; the remaining 774, either at Hamilton or at various points in its neighbourhood. The most distant of these points are: On the road to Toronto, Port Nelson; to the north, Puslinch Lake; to the west, Galt and Paris; to the south, the Townships of Binbrook and Glanford; to the south-east, the Welland peat-bog; and to the east, the Niagara River. The most recent list of Canadian plants, as far as I know, is that furnished for the Curtiss Catalogue by Professor Macoun. Our list contains fifty-one species and varieties not reported by Macoun. Several of these, I am informed, were inadvertently omitted from the Catalogue; there may be room for doubt as to the complete naturalization or accurate determination of others; but after making all necessary deductions, a considerable number will have been added to the list of Canadian plants. A very large part—but not all—of these new plants are mentioned in Hubbert's Catalogue; but as I have no means of ascertaining to what extent that Catalogue was conjectural, I do not feel bound to admit that they have all been heretofore reported as Canadian. They have not, at any rate, been recently reported, and there are at least a few which do not occur at all in any previous list. The plants of the occurrence of which we claim to be either the discoverers or the re-discoverers, are distinguished by appropriate marks in the appended lists, and specimens of some of the more interesting will be exhibited at the conclusion of the paper.

It will be noticed that a very large part of the plants reported—one-eighth, in fact—consists of naturalized plants. Some of those admitted into Judge Logie's list have, I do not doubt, been admitted on insufficient evidence; but it is nevertheless the fact that a large

portion of our flora is made up of naturalized plants. These naturally divide themselves into two classes: weeds which attend cultivation, and cultivated plants which find the conditions of existence so favourable that they become weeds. The phenomena attending the change of cultivated plants into weeds will, in my opinion, well repay observation, on account of their connection with climatic influences, and their bearing on the question of the original home of the plants themselves, and hence on the course of civilization, as well as on account of the light they may throw on the question of the amount and limits of the variability of species. We have in Hamilton many of the common plants of this class, as *e. g.* the Jerusalem Oak, and the Hemp; and I notice with interest patches of the Summer Savory (*Satureia hortensis*, L.) appearing year after year on dry gravel hills and railway cuttings through gravel near the Bay. According to Gray's Manual, it has run wild on the prairies of Illinois and on some rocky islands near the Falls of the Ohio. If it succeeds in establishing itself at Hamilton, we may infer that the summer climate of that place sufficiently resembles that of its original Mediterranean home, and that the seeds are capable of surviving the rigour of our winters.

The mode of introduction and the rate of the progress made by the weeds which attend on civilized man, are phenomena which we have in this country unsurpassed facilities for observing, and careful observations on these points may be of great value. Although nearly all these weeds come from Europe, perhaps the most interesting one in our lists comes from tropical America. I refer to the Sping Clotbur (*Xanthium spinosum*, L.), which has become an exceedingly common weed in the gutters of the streets and in the gardens of the town of Dundas. I have never found it except in Dundas, though I understand that it occurs at points between Hamilton and the Niagara frontier. It has, as far as I am aware, never hitherto been reported as occurring in Canada, and I am inclined to think that it has been introduced into Dundas with the raw cotton since the establishment of the cotton mill in that place. I notice that Gray, in his Manual, speaks of the Viper's Bugloss (*Echium vulgare*, L.) as rare northward, but a troublesome weed in the cultivated fields of Virginia. It may not be generally known that it is very abundant and exceedingly troublesome in the County of Glengarry, apparently filling the same place there that the Canada thistle does on exhausted farms in other parts of Ontario. In many parts of that county whole farms appear

to be covered with it. I was told by a native of the county that it was originally brought there from Italy by a Roman Catholic ecclesiastic as a garden flower, and that from so small a beginning it had become the pest it now is. Though my informant was a thoroughly reliable man, he probably had his information from an ultra-Protestant source, and it may therefore be necessary to add a grain of salt to correct the *odium theologicum*. At any rate—

> "I cannot tell how the truth may be;
> I tell the tale as 'twas told to me."

According to Grisebach, the continent of North America contains five distinct vegetable provinces. These are: the Arctic Province, the Great Wooded Province, the Prairie Province, California, and Mexico. The Great Wooded Province, commencing at the northern limit of trees, descends on the west coast to Oregon and on the east coast to the Gulf of Mexico, but is nearly split in two by the prairies of the central plateau. The connecting link between the eastern and western divisions is the zone of the White Spruce, which extends across the continent and finds its southern limit about 54° North latitude. To the south of the zone of the White Spruce lie, on the west coast, the sub-province of the Oregon Spruces; and on the east coast, the sub-provinces of the Deciduous-leaved Trees, Newfoundland, and the Southern States. The sub-province of the Deciduous-leaved Trees stretches from Lake Winnipeg to the mouth of the Chesapeake, and from the mouth of the St. Lawrence to the southern border of Kentucky. The climate of this vast sub-province is affected on the sea coast by the sea, and in the interior by the Great Lakes, and roughly corresponds to that of the centre and east of Europe. The inhabited portion of Ontario is evidently near the centre of this vegetable sub-province; and the western peninsula of Ontario, being exposed in the completest manner to the influence of the Great Lakes, may be regarded as typical of the sub-province of Deciduous-leaved Trees.

The portion of country roamed over by Judge Logie, and to a less extent by myself, in search of plants, does not form a natural botanical division of Western Ontario. The differences of soil, elevation and exposure to be met with about Hamilton in the compass of a few miles rather favour the intermixture of the plants of different regions, and I believe that in consequence the flora of the County of Wentworth, when thoroughly worked up, will prove to be one of the richest in the Dominion. Hamilton certainly seems to lie near the

northern limit of a number of important trees. The Tulip-tree, the Flowering Dogwood, the Plane (one of the largest of deciduous-leaved trees), the Black Walnut and the Chestnut seem not to occur to the north of the Hamilton Valley. The proof of the existence of a sharp line of demarcation at this point appears complete when we learn that the tree which forms the most northern forests in America —the White Spruce—occurs about eight miles to the north of Hamilton, along with some other northern plants.

The valley in which Hamilton lies is about sixteen miles in length, and about seven miles in width at its mouth. It may be considered to extend from the village of Copetown on the west to Burlington Beach on the east. Burlington Beach is a strip of sand very similar to Toronto Island, which completely cuts off Burlington Bay from Lake Ontario, and through which there is a canal for the passage of vessels. Hamilton Valley is bounded on the east by Lake Ontario, and on every other side by the Mountain, which proves when you ascend it to be merely the rocky edge of the plateau which occupies nearly the whole of Western Ontario. In the bottom of the valley lie Dundas Creek, Dundas Marsh and Burlington Bay, forming a water system about eleven miles long. The villages of Ancaster, Copetown and Waterdown are situated on the brow of the Mountain overlooking the valley, Dundas and Hamilton lie in the bottom of the valley, and Wellington Square and Stony Creek at its mouth, the former on the north, the latter on the south side. The soil seems to have been formed on the slope of the Mountain from the debris of the limestone rocks. Further down, in many places, a red clay is found, resulting from the decomposition of a red shale that crops out near the foot of the Mountain. In the bottom of the valley the surface deposit is apparently lacustrine. At any rate, the proof that it was formerly covered by the waters of Lake Ontario appears to be conclusive. Right across the valley from north to south, past the head of Burlington Bay, and dividing it from Dundas Marsh, runs a gravel ridge known as Burlington Heights, and having some historical interest in connection with the war of 1812. This ridge rises to a height of about 108 feet above the present level of the Lake, and appears to have been formed by the same causes which have since formed Burlington Beach, and to have been a bar between a bay which then covered Dundas Marsh and the then Lake. This ridge is of botanical importance, inasmuch as it protects the shores of Dundas

Marsh from the east wind; and as they are sheltered by the Mountain from all other breezes except the west wind, and even in many parts from that, they offer many exceptionally favourable localities for rare plants. Unfortunately, the advance of cultivation and the ravages of cattle have destroyed much of the original vegetation, but even yet its shores offer some rare plants to the collector.

It will be evident from the preceding description that if plants occur at Hamilton which do not occur at some other locality in the Province where the soil is equally suitable for their growth, that their occurrence at Hamilton must depend either on the shelter they are able to find or upon climate. Indeed, the first reason resolves itself on examination into the second, for shelter influences climate. With the view of ascertaining what is peculiar in the climate of Hamilton, and particularly what the influence of the Great Lakes on it is, I have instituted a comparison between it and that of Belleville, based on the meteorological records which have been kept in both places for the last eight years. I would have preferred, for purposes comparison, some place more remote from the Great Lakes, such as Cornwall, Pembroke or Montreal; but though the meteorology of these places has been investigated, I could not obtain a complete account of their flora. On the contrary, Prof. Macoun, of Belleville, whose knowledge of Canadian plants far exceeds that of any other man I have ever met, has been so kind as to furnish me with a list of the plants occurring in the Counties of Hastings and Prince Edward, which is probably complete, and the accessibility of this source of information has decided me in favour of Belleville.

Belleville is 55′ further north, and 2° 32′ further east, than Hamilton. The height of the two places above the level of the sea is nearly the same, and the heights of the points at which the observations have been taken are 308 feet in the case of Belleville, 325 in the case of Hamilton. Both towns are situated on arms of the Lake, and the soil in their immediate vicinity must be very similar, as in both cases calcareous rocks crop out in the neighbourhood, lacustrine deposits occur along the shores, and Erie clay further back. But Hamilton lies in a comparatively confined valley, Belleville in an open one, and Hamilton is nearer the main body of Lake Ontario than Belleville. The former place, lying as it does nearer all the Great Lakes than the latter, must be less continental in its climate—that is, the range of the thermometer must be less.

The High School meteorological observations, on which the following comparison is based, have been generally supposed not to be reliable. The results of my comparison, however, agree remarkably with *a priori* inferences. It is true, of course, that the observations taken during a period of eight years form an insufficient basis for determining the absolute climatic position of any place; but for the purpose of developing the relations of the climates of two places lying so near each other they are probably quite sufficient. The mean annual temperature of Belleville is 43·98° F.; of Hamilton, 45·95°. The mean temperature of the six winter months included between September 30th and April 1st is, at Belleville 27·87°, at Hamilton 31·09°. The mean summer temperature of Belleville is 60·12°, of Hamilton, 60·73°. Thus, though the mean annual temperature of Hamilton is two degrees higher than that of Belleville, it is only about half a degree warmer in summer, and over three degrees warmer in winter than the latter place. These results, of course, find their explanation in the greater proximity of Hamilton to the large inland seas. At Belleville, the months of May and June are warmer than the same months at Hamilton, but the remaining ten months are colder. Water becomes heated more slowly than land, and consequently the heat which raises the temperature of the Belleville spring is abstracted at Hamilton by the neighbouring bodies of water. The annual precipitation is about an inch less at Belleville, the means being 35·53 and 36·76 inches respectively. The mean greatest cold is, at Belleville 18·3°, and at Hamilton 13·7° below zero, which gives about the difference that might be anticipated. Strange to say, however, the next result, which is determined by the same thermometers that record the greatest cold, is at variance with *a priori* conclusions. The mean period during which the minimum thermometer does not mark below 32° F. is, at Belleville 161¼, at Hamilton only 151¾ days. As the shelter under which a minimum thermometer must be kept to some extent retards radiation, so that slight frosts are experienced in the open fields before it indicates frost, I have made another calculation allowing 4° F. for the difference between a thermometer protected from the rain, and one *sub Jove frigido*. The mean period during which the minimum thermometer does not fall below 36° F., and during which, consequently, there cannot be the slightest frost, is, at Belleville 136⅛, at Hamilton 123⅜ days. Were it not that the minimum thermometers apparently record the

greatest degree of cold correctly, I should have little hesitation in saying that I thought that the one or the other, or both, were unreliable. As the case stands, I can only wait for further light on the subject.

The meteorological relations above indicated are of course strictly true only of the towns of Hamilton and Belleville, but they may be accepted as approximately correct for the country surrounding each place, and it becomes interesting to inquire whether there are differences in the floras of the two places corresponding to the differences in climate. Unfortunately, as the list of Hamilton plants is far from complete, it is impossible to investigate this subject thoroughly, for we cannot feel certain that plants reported from Belleville may not hereafter be reported from Hamilton. We may venture to conclude, however, that more northern plants will be found at Belleville than at Hamilton, and that if any southern plants occur at the former that do not occur at the latter place, they will be such as flower in spring, and are favoured by the superior warmth of the Belleville May and June. They will probably not be trees or shrubs, as the greater cold of the Belleville winter would be likely to kill them.

Imperfect as the appended list of Hamilton plants is, I find on examination that it contains ninety-four species and varieties that are not reported from Belleville and its vicinity. Among these there are eight unimportant varieties and twenty naturalized plants. Deducting the naturalized plants and also fourteen native plants that do not grow in the Hamilton Valley, we have a remainder of sixty plants that are probably favoured by the climatic conditions of that valley, and these conditions must, from the nature of the valley, be very nearly the same throughout. Of these sixty plants, by far the largest number flower, as might be expected, in summer and fall, when the mean temperature is above that of Belleville. The months of July, August and September are at Hamilton, on the average, between $1\frac{1}{2}°$ and $2°$ warmer than the corresponding months at Belleville, as is shown by the subjoined table. But eighteen of the sixty flower in May and June, when the weather is colder at Hamilton than at Belleville. To what is the phenomenon of their occurrence to be attributed? On examination, eleven of the eighteen prove to be trees or shrubs whose flower-buds would be liable to be injured by severe winter cold, and which the comparatively mild winter of Hamilton permits to flourish. For the occurrence of the remaining seven, I can give no climatic reasons.

It would be interesting to know what influence the Great Lakes

exercise on the boundary lines of widely distributed plants. These great bodies of never-freezing water must give the western part of Ontario a climate in many respects approximating to that of the sea coast. The influence of the sea on the range of plants in Europe has been thoroughly investigated by Grisebach and others, and many curious relations between the various factors of climate and the different species of plants have been established. On that continent the majority of plants have either a north-western or a north-eastern boundary line—*i. e.*, their northern boundary lines are not coincident with parallels of latitude, but intersect them. For example, the European Chestnut has a north-eastern limit running from the south of England to the Lake of Constance, or from about 52° to about 48° of North latitude. On the other hand, the boundary line of the European Silver Fir (*Pinus picea*, L.) crosses this at right angles, running from about 43° in the Pyrenees to about 52° in Poland. Grisebach's inference from this is that the Chestnut requires a long summer, the Silver Fir a hot one. It would be interesting to know whether the relations between our Balsam Fir and our Chestnut, the corresponding trees on this continent, are the same. In one respect, at any rate, I think they are different. For reasons given above, it would seem that the northern limit of the American Chestnut is fixed by the severity of the winter, and not by the length of the summer.

With the view of throwing, if possible, a little light on the important question raised in the preceding paragraph, I have investigated the direction in which each of the 71 native plants occurring at Hamilton, but not at Belleville, extends farthest. For ten I can give no direction, but fourteen may be described as northern, one as north-eastern, two as south-eastern, thirty-four as southern, seven as south-western, two as western, and one as north-western. This result would seem to show that the Great Lakes exercise an influence in bringing the boundary lines of plants, which would otherwise run parallel to or at right angles with the Atlantic coast, more into conformity with the parallels of latitude. I am inclined to think, however, that, although this is in a certain sense true, it will be found that the curve of the boundary line of many plants is in Ontario most remarkable and decided. For example, the Early Frost Grape (*Vitis riparia*, Mx.) occurs both at Hamilton and Collingwood, but not at Belleville. The Cranberry (*Viburnum Opulus*, L.) and the Ninebark (*Spiræa opulifolia*, L.) have been found at London and at

Fullarton, thirty miles north of London, but not so far as Hamilton. The Harbinger of Spring (*Erigenia bulbosa*, Nutt.) occurs at St. Thomas, London and Fullarton, but not at Hamilton.

In preparing the following lists I have followed the classification and nomenclature adopted by Gray in the fifth edition of his Manual, and in consequence some of the names which occur in the list of Judge Logie's plants are not those which he affixed to the specimens, but synonyms. The specific names of naturalized plants are printed in small capitals; the names of those not reported as Canadian by Macoun, in the Curtiss Catalogue, are distinguished by an asterisk; and those not occurring in Hubbert's list, by a dagger.

LIST OF CANADIAN PLANTS

COLLECTED BY THE LATE A. LOGIE, ESQ., JUDGE OF THE COUNTY OF WENTWORTH.

RANUNCULACEÆ.

Clematis verticillaris, D. C. Rare.
B. " Virginiana, L. Rare.
B. Anemone cylindrica, Gray.
B. " Virginiana, L.
" Pennsylvanica, L.
B. " nemorosa, L.
Anemone nemorosa, L., var. quinquefolia, Gray.
B. Hepatica triloba, Chaix.
B. " acutiloba, D. C.
B. Thalictrum anemonoides, Mx.
B. " dioicum, L.
B. " Cornuti, L.
Ranunculus multifidus, Pursh.
B. " abortivus, L.
B. " sceleratus, L.
B. " recurvatus, Poir.
" Pennsylvanicus, L.
B. " fascicularis, Muhl.
" repens, L. Galt.
B. " ACRIS, L.
B. Caltha palustris, L.
Coptis trifolia, Salisb. Lake Medad.
B. Aquilegia Canadensis, L.
B. Actæa spicata, L. var. rubra, Mx.
B. " alba, Bigel.

MAGNOLIACEÆ.

B. Liriodendron Tulipifera, L. Trees now all cut down.

MENISPERMACEÆ.

Menispermum Canadense, L. Not common.

BERBERIDACEÆ.

B. Caulophyllum thalictroides, Mx.
B. Podophyllum peltatum, L.

NYMPHÆACEÆ.

B. Nymphæa odorata, Ait.
B. Nuphar advena, Ait.

SARRACENIACEÆ.

Sarracenia purpurea, L. Puslinch Lake.

PAPAVERACEÆ.

B. Chelidonium MAJUS, L.
B. Sanguinaria Canadensis, L.

FUMARIACEÆ.

Adlumia cirrhosa, Raf. Rare.
B. Dicentra cucullaria, D. C.
B. " Canadensis. D. C.
Corydalis glauca, Pursh. Kingston.

CRUCIFERÆ.

Nasturtium OFFICINALE, R. Br.
B. " palustre, D. C.
B. Dentaria diphylla, L.
B. " laciniata, Muhl.
Cardamine rhomboidea, D.C., var. purpurea, Torr.
Cardamine pratensis, L.
Cardamine hirsuta, L., var. silvatica, Gray.
Arabis lyrata, L. The Whirlpool, Niagara River.

CRUCIFERÆ—*Continued.*

† * Arabis sagittata, D. C. Galt. [Probably A. hirsuta].
B. Arabis Canadensis, L.
Erysimum cheiranthoides, L.
B. Sisymbrium OFFICINALE, Scop.
B. Brassica SINAPISTRUM, Boissier.
B. Capsella BURSA-PASTORIS, Moench.
B. Lepidium Virginicum, L.
B. Cakile Americana, Nutt.

CAPPARIDACEÆ.

B. Polanisia graveolens, Raf.

VIOLACEÆ.

B. Viola blanda, Willd.
B. " cucullata, Ait.
" sagittata, Ait.
B. Viola canina, L., var. silvestris, Regel.
B. Viola rostrata, Pursh.
B. " Canadensis, L.
B. " pubescens, Ait.

CISTACEÆ.

B. Helianthemum Canadense, Mx.

DROSERACEÆ.

Drosera rotundifolia, L. Border of a lake near Paris: also near Ancaster.

HYPERICACEÆ.

Hypericum Kalmianum, L.
" ellipticum, Hook.
B. " PERFORATUM, L.
B. " corymbosum, Muhl.
B. " mutilum, L.
Elodes virginica, Nutt. Not common.

CARYOPHYLLACEÆ.

Silene INFLATA, Smith. Not common.
B. Silene antirrhina, L. Not common.
" NOCTIFLORA, L.
B. Lychnis GITHAGO, Lam. Not common.
Arenaria SERPYLLIFOLIA, L. Galt: also Saltfleet
B. Arenaria stricta, Mx. Rare.
" lateriflora, L.
B. Stellaria MEDIA, Smith.
B. " longifolia, Muhl.
B. Cerastium VULGATUM, L.
Cerastium oblongifolium, Torr. [Is not this C. viscosum or C. nutans?]

CARYOPHYLLACEÆ—*Continued.*

B. Cerastium arvense, L. Cacouna. [Burlington Heights.]
Spergularia rubra, Presl. Cacouna.

PORTULACACEÆ.

B. Portulaca OLERACEA, L.
B. Claytonia Virginica, L.

MALVACEÆ.

B. Malva ROTUNDIFOLIA, L.
Abutilon AVICENNÆ, Gaertn.

TILIACEÆ.

B. Tilia Americana, L.

LINACEÆ.

Linum Virginianum, L.

GERANIACEÆ.

B. Geranium maculatum, L.
B. " Robertianum, L.
† * B. Erodium CICUTARIUM, L'Her.
B. Impatiens pallida, Nutt.
B. " fulva, Nutt.
B. Oxalis stricta, L.

RUTACEÆ.

B. Xanthoxylum Americanum, Mill.

ANACARDIACEÆ.

B. Rhus typhina, L.
B. " Toxicodendron, L.

VITACEÆ.

B. Vitis cordifolia, Mx.
B. Ampelopsis quinquefolia, Mx.

RHAMNACEÆ.

Rhamnus alnifolius, L'Her.
B. Ceanothus Americanus, L.

CELASTRACEÆ.

B. Celastrus scandens, L.
B. Euonymus Americanus, L., var. obovatus, Torr. and Gr.

SAPINDACEÆ.

B. Staphylea trifolia, L. Not common.
B. Acer spicatum, Lam.
B. " saccharinum, Wang.
B. " dasycarpum, Ehrhart.
B. " rubrum, L.

POLYGALACEÆ.

* Polygala Nuttallii, Torr. and Gr.
B. " verticillata, L.
B. " Senega, L.
Polygala paucifolia, Willd. Near Lake Medad.

LEGUMINOSÆ.

Lupinus perennis, L. London.
B. Trifolium ARVENSE, L.
B. " PRATENSE, L.
B. " repens, L.
B. Medicago LUPULINA, L.
B. Astragalus Canadensis, L.
Astragalus Cooperi, Gray. Not common.
B. Desmodium nudiflorum, D. C.
B. " acuminatum, D. C.
B. " paniculatum, D. C.
* B. " Canadense, D. C.
Lespedeza repens, Torr. and Gr. The Dell, Ancaster.
Lespedeza violacea, Pers. The Dell, Ancaster.
Lespedeza hirta, Ell.
B. " capitata, Mx.
Vicia hirsuta, Koch.
" cracca, L. Cacouna.
" Americana, Muhl. Paris.
† * Lathyrus PRATENSIS, L.
B. " ochroleucus, Hook.
B. Lathyrus palustris, L., var. myrtifolius, Muhl.
B. Apios tuberosa, Moench.
B. Amphicarpæa monoica, Nutt.

ROSACEÆ.

B. Prunus Americana, Marshall.
B. " Virginiana, L.
B. " serotina, Ehrhart.
Spiræa opulifolia, L. Byron, near London.
Spiræa salicifolia, L. Millgrove.
* B. Gillenia trifoliata, Moench.
Poterium Canadense, Gray. Cacouna.
B. Agrimonia Eupatoria, L.
B. Geum album, Gmelin.
B. " strictum, Ait.
" rivale, L.
Geum triflorum, Pursh. Byron. Galt.
B. Waldsteinia fragarioides, Tratt.
B. Potentilla Norvegica, L.
B. " Canadensis, L.
B. " argentea, L.
" arguta, Pursh. Galt.

LEGUMINOSÆ—*Continued.*

B. Potentilla anserina, L.
Potentilla fruticosa, L. Byron. Galt.
B. Potentilla palustris.
B. Fragaria Virginiana, Ehrhart.
B. " vesca, L.
Dalibarda repens, L. Millgrove Marsh.
B. Rubus odoratus, L.
B. " triflorus, Richardson.
B. " strigosus, Mx.
B. " occidentalis, L.
B. " villosus, Ait.
B. Rosa lucida, Ehrhart.
B. " blanda, Ait.
* " MICRANTHA, Smith.
B. Cratægus coccinea, L.
B. " tomentosa, L.
B. Pyrus coronaria, L.
* Pyrus arbutifolia, L., var. melanocarpa, Millgrove Marsh.
Amelanchier Canadensis, Torr. and Gr., var. Botryapium.
* B. Amelanchier Canadensis, Torr. and Gr., var. rotundifolia.

SAXIFRAGACEÆ.

Ribes hirtellum, Mx.
B. " floridum, L.
" rubrum, L.
Parnassia Caroliniana, Mx. Banks of the Rocky Saugeen, near Durham; also near Ancaster.
B. Saxifraga Virginiensis, Mx.
B. Mitella diphylla, L.
" nuda, L. Mount Forest.
B. Tiarella cordifolia, L.
Chrysosplenium Americanum, Schwein. The Dell, Ancaster.

CRASSULACEÆ.

B. Penthorum sedoides, L.

HAMAMELACEÆ.

B. Hamamelis Virginica, L.

HALORAGEÆ.

B. Myriophyllum spicatum, L.
" verticillatum, L.
" heterophyllum, Mx.

ONAGRACEÆ.

B. Circæa Lutetiana, L.
B. " Alpina, L.
B. Epilobium angustifolium, L.

ONAGRACEÆ—*Continued.*

Epilobium molle, Torr. Byron. Lake Medad.
B. Epilobium coloratum, Muhl.
B. Œnothera biennis, L., var. muricata.
† * Œnothera biennis, L., var. grandiflora. Mount Forest.
Œnothera pumila, L.

LYTHRACEÆ.

B. Nesæa verticillata, H. B. K.

CUCURBITACEÆ.

Sicyos angulatus, L.

UMBELLIFERÆ.

Hydrocotyle Americana, L. The Dell, Ancaster.
B. Sanicula Canadensis, L.
B. " Marilandica, L.
B. Heracleum lanatum, Mx.
B. Conioselinum Canadense, Torr. and Gr. Galt. [Hamilton.]
Thaspium aureum, Nutt.
B. Zizia integerrima, D. C.
B. Cicuta maculata, L.
" bulbifera, L.
B. Sium lineare, Mx.
B. Cryptotænia Canadensis, D. C.
B. Osmorrhiza brevistylis, D. C.
Erigenia bulbosa, Nutt. St. Thomas. [Fullarton.]

ARALIACEÆ.

B. Aralia racemosa, L.
B. " nudicaulis, L.
" quinquefolia, Gray.
" trifolia, Gray.

CORNACEÆ.

Cornus Canadensis, L.
B. Cornus florida, L. Ancaster. [Hamilton.]
B. Cornus circinata, L'Her.
B. " stolonifera, Mx.
B. " paniculata, L'Her.
" alternifolia, L.

CAPRIFOLIACEÆ.

Linnæa borealis, Gronov. Lake Medad.
B. Symphoricarpus racemosus, Mx.
† * Lonicera flava, Sims.
" parviflora, Lam.
" ciliata, Muhl.
B. Diervilla trifida, Moench.

CAPRIFOLIACEÆ—*Continued.*

B. Triosteum perfoliatum.
B. Sambucus Canadensis, L.
B. " pubens, Mx.
Viburnum nudum, L., var. cassinoides. Millgrove.
B. Viburnum pubescens, Pursh.
B. " acerifolium, L.
Viburnum Opulus, L. Byron. [Fullarton.]

RUBIACEÆ.

B. Galium Aparine, L.
" asprellum, Mx.
B. " trifidum, L.
B. " triflorum, Mx.
B. " boreale, L.
B. Cephalanthus occidentalis, L.
B. Mitchella repens, L.
Houstonia purpurea, L., var. ciliolata. Niagara.
Houstonia purpurea, L., var. longifolia. Paris.

COMPOSITÆ.

Liatris cylindracea, Mx. Westminster, near London
B. Eupatorium purpureum, L.
B. " perfoliatum, L.
B. " ageratoides, L.
B. Aster corymbosus, Ait.
B. " macrophyllus, L.
* B. Aster lævis, L., var. lævigatus, Willd.
B. Aster lævis, L., var. cyaneus, Hoffm.
B. Aster undulatus, L.
B. " cordifolius, L.
B. " multiflorus, Ait.
B. " Tradescanti, L.
B. " miser, L., Ait.
B. " simplex, Willd.
B. " puniceus, L.
B. " Novæ-Angliæ, L.
Aster graminifolius, Pursh. Millgrove.
B. Erigeron Canadense, L.
B. " bellidifolium, Muhl.
B. " Philadelphicum, L.
B. " strigosum, Muhl.
Diplopappus umbellatus, Torr. and Gray.
B. Solidago bicolor, L.
B. " latifolia, L.
B. " cæsia, L.
" stricta, Ait.
B. " altissima, L.

COMPOSITÆ—*Continued.*

B. Solidago nemoralis, Ait.
B. " Canadensis, L.
B. " " L, var. scabra.
B. " lanceolata, L.
B. Polymnia Canadensis, L.
B. Ambrosia artemisiæfolia, L.
B. Xanthium strumarium, L., var. echinatum.
† * B. Xanthium SPINOSUM, L. Dundas.
B. Rudbeckia laciniata, L.
B. " hirta, L.
B. Helianthus strumosus, L.
B. " divaricatus, L.
Helianthus divaricatus, L., a var. with the leaves whorled in threes. Prince's Island.
B. Helianthus decapetalus, L.
B. Bidens frondosa, L.
B. " connata, Muhl.
B " cernua, L.
B. " chrysanthemoides, Mx.
Helenium autumnale, L.
B. Achillea millefolium, L.
B. Leucanthemum VULGARE, Lam.
B. Tanacetum VULGARE, L.
B. Gnaphalium decurrens, Ives.
" polycephalum, Mx.
B. " uliginosum, L.
B. Antennaria margaritacea, R. Brown.
B. Antennaria plantaginifolia, Hook.
B. Erechthites hieracifolia, Raf.
B. Senecio VULGARIS, L.
† * Senecio PALUSTRIS, Hook. Roadside, Wellington Square.
Senecio aureus, L ,Burford.
B. Cirsium discolor, Spreng.
Cirsium muticum, Mx. Westminster.
B. Cirsium ARVENSE, Scop.
B. Lappa OFFICINALIS, Allioni.
Lampsana COMMUNIS, L.
Leontodon AUTUMNALE, L.
B. Hieracium Canadense, Mx.
B. " scabrum, Mx.
" venosum, L. Ancaster.
B. Nabalus albus, Hook.
B. Nabalus albus, Hook, var. serpentaria.
B. Nabalus altissimus, Hook.
† * Nabalus Fraseri, D. C., var. integrifolius. Prince's Island.
B. Lactuca Canadensis, L.
B. Mulgedium leucophæum, D. C.
B. Sonchus OLERACEUS, L.
B. " ASPER, Vill.

LOBELIACEÆ.

Lobelia cardinalis, L.
B. " syphilitica, L.
B. " inflata, L.
B. " spicata, Lam.
" Kalmii, L. Collingwood.

CAMPANULACEÆ.

B. Campanula rotundifolia, L.
B. " aparinoides, Pursh.
B. " Americana, L.
B. Specularia perfoliata, D. C.

ERICACEÆ.

B. Gaylussacia resinosa. Torr. and Gr.
Vaccinium macrocarpon, Ait. Welland Peat-bog.
Chiogenes hispidula, Torr. and Gr. Millgrove Marsh.
B. Gaultheria procumbens, L.
Cassandra calyculata, Don. Millgrove.
Cassiope hypnoides, Don. Cacouna.
Kalmia glauca, Ait. Welland Peat-bog.
Ledum latifolium, Ait. Lake Medad.
† * Ledum palustre, L. Welland Peat-bog.
† * B. Pyrola rotundifolia, L., var. uliginosa. Lake Medad.
† * B. Pyrola rotundifolia, L., var. asarifolia. Lake Medad.
B. Pyrola elliptica, Nutt.
Moneses uniflora, Gray. Lake Medad.
B. Chimaphila umbellata, Nutt.
Pterospora Andromedea, Nutt.
B. Monotropa uniflora, L.

PLANTAGINACEÆ.

B. Plantago MAJOR.
Plantago maritima, L., var. juncoides. Cacouna.
B. Plantago LANCEOLATA, L.

PRIMULACEÆ.

Primula Mistassinica, Mx. Near Paris.
B. Trientalis Americana, Pursh.
Lysimachia thyrsiflora, L. Cumminsville and Lake Medad.
Lysimachia stricta, Ait. St. Thomas and East Flamboro'.

PRIMULACEÆ—*Continued.*

B. Lysimachia quadrifolia, Ait.
" ciliata, L.
Lysimachia longifolia, Pursh. Collingwood.
† * Anagallis ARVENSIS, L.

LENTIBULACEÆ.

B. Utricularia vulgaris, L.
Utricularia cornuta, Mx. Westminster.

OROBANCHACEÆ.

Epiphegus Virginiana, Bart.
Conopholis Americana, Wallroth.

SCROPHULARIACEÆ.

B. Linaria VULGARIS, Mill.
B. Scrophularia nodosa, L.
B. Chelone glabra, L.
B. Pentstemon pubescens, Solander.
B. Mimulus ringens, L.
Gratiola Virginiana, L. Hall's Corners. Rare.
B. Veronica Americana, Schweinitz.
" scutellata, L., Millgrove.
* B. " officinalis, L.
B. " serpyllifolia, L.
B. " peregrina, L.
B. " ARVENSIS, L.
* Veronica TRIPHYLLOS. In cultivated ground.
Gerardia purpurea, L. Waterdown Creek. Rare.
Gerardia tenuifolia, Vahl.
B. " flava, L.
B. " quercifolia, Pursh.
Gerardia integrifolia, Gray [= G. flava].
B. Gerardia pedicularia, L.
B. Castilleia coccinea, Spreng.
Rhinanthus Crista-galli, L. Cacouna.
B. Pedicularis Canadensis, L.
B. Melampyrum Americanum, Mx.

VERBENACEÆ.

B. Verbena hastata, L.
B. " urticifolia, L.
B. Phryma Leptostachya, L.

LABIATÆ.

B. Teucrium Canadense, L.
Mentha VIRIDIS, L.
" PIPERITA, L.
B. " Canadensis L.

LABIATÆ—*Continued.*

B. Lycopus Virginicus, L.
B. Lycopus Europæus, L., var. sinuatus.
* Pycnanthemum incanum, Mx.
Calamintha glabella, Benth., var. Nuttallii, Gray. Niagara Falls.
Hedeoma pulegioides, Pers.
B. Collinsonia Canadensis, L.
* Monarda didyma, L. Mount Forest.
B. " fistulosa, L.
B. Nepeta CATARIA, L.
B. Brunella vulgaris, L.
Scutellaria parvula, Mx. The Whirlpool, Niagara River.
B. Scutellaria galericulata, L.
B. " lateriflora, L.
Marrubium VULGARE, L.
B. Galeopsis TETRAHIT. Cacouna. [Dundas.]
Stachys palustris, L., var. aspera.
B. Leonurus CARDIACA, L.
Lamium AMPLEXICAULE, L.

BORRAGINACEÆ.

B. Echium VULGARE, L.
Symphytum OFFICINALE, L.
Onosmodium Carolinianum, D. C.
B. Lithospermum ARVENSE, L.
Lithospermum canescens, Lehm. Galt.
Mertensia maritima, Don. Cacouna.
B. Myosotis palustris, Withering.
B. Echinospermum LAPPULA, Lehm.
B. Cynoglossum OFFICINALE, L.
" Virginicum, L. Galt.
B. " Morisoni, D. C.

HYDROPHYLLACEÆ.

B. Hydrophyllum Virginicum, L.

POLEMONIACEÆ.

B. Phlox divaricata, L.

CONVOLVULACEÆ.

B. Calystegia sepium, R. Br.
Calystegia sepium, R. Br., var. repens.
Calystegia spithamœa, Pursh. Galt. Dundas.
B. Cuscuta Gronovii, Willd. Rare.

SOLANACEÆ.

B. Solanum DULCAMARA, L.
B. " NIGRUM, L.

HYDROPHYLLACEÆ—*Continued.*

B. Physalis viscosa, L.
B. Hyoscyamus NIGER, L. Niagara. [Hamilton.]
B. Datura STRAMONIUM, L. [Eaten with avidity by the Potato Bug.]
Nicotiana RUSTICA, L. West Flamboro'.

GENTIANACEÆ.

Halenia deflexa, Grisebach. Collingwood; also at Ancaster.
B. Gentiana crinita, Froel. [Our latest blooming flower. I found it in blossom, uninjured, in November, 1872, several days after the minimum thermometer had marked 22° F.]
Gentiana detonsa, Fries. Niagara Falls.
Gentiana alba, Muhl. Rare.
Gentiana Andrewsii, Grisebach. Rare.
Gentiana acuta, Mx. [Query.]
Menyanthes trifoliata, L. Galt; also Lake Medad.

APOCYNACEÆ.

B. Apocynum androsæmifolium, L.
B. " cannabinum, L.

ASCLEPIADACEÆ.

B. Asclepias Cornuti, Decaisne.
B. " phytolaccoides, Pursh.
B. " incarnata, L.
B. " tuberosa, L.

OLEACEÆ.

B. Fraxinus Americana, L. Not common.
Fraxinus sambucifolia, Lam. Ancaster.

ARISTOLOCHIACEÆ.

B. Asarum Canadense, L.

PHYTOLACCACEÆ.

Phytolacca decandra, L. Stony Creek.

CHENOPODIACEÆ.

B. Chenopodium ALBUM, L.
B. " HYBRIDUM, L.
B. " BOTRYS, L.
B. " AMBROSIOIDES, L.

CHENOPODIACEÆ—*Continued.*

Blitum capitatum, L. Galt.
* Blitum BONUS HENRICUS, Reichenbach.

AMARANTACEÆ.

B. Amarantus PANICULATUS, L.
B. " retroflexus, L.
B. Amarantus græcizans, L. [= A. ALBUS, L.]
† * Amarantus pumilus, Raf. Galt. [Probably A. VIRIDIS.]

POLYGONACEÆ.

B. Polygonum Pennsylvanicum, L.
B. " PERSICARIA, L.
B. " hydropiperoides, Mx.
* B. Polygonum amphibium, L., var. terrestre.
B. Polygonum aviculare, L.
B. " sagittatum, L.
B. " CONVOLVULUS, L.
B. Rumex orbiculatus, Gray.
B. " verticillaris, L.
B. " ACETOSELLA.

LAURACEÆ.

B. Sassafras officinale, Nees.
Lindera Benzoin, Meisner.
B. Dirca palustris, L.

ELÆAGNACEÆ.

B. Shepherdia Canadensis, Nutt.

SANTALACEÆ.

B. Comandra umbellata, Nutt.

EUPHORBIACEÆ.

B. Euphorbia polygonifolia, L.
B. " maculata, L.
* B. Euphorbia hypericifolia, L. Waterdown.
* Euphorbia PLATYPHYLLA, L. The Beach near Stony Creek.
Euphorbia obtusata, Pursh. [Query.]
B. Euphorbia HELIOSCOPIA, L.
B. " PEPLUS, L.
Acalypha Virginica, L.

URTICACEÆ.

B. Ulmus fulva, Mx.
B. " Americana, L.
Urtica gracilis, Ait.
B. Laportea Canadensis, Gaudichaud.

URTICACEÆ—*Continued.*

B. Pilea pumila, Gray.
B. Bœhmeria cylindrica, Willd.
B. Cannabis SATIVA, L.

PLATANACEÆ.

B. Platanus occidentalis, L. Stony Creek and Grimsby. [Dundas.]

JUGLANDACEÆ.

B. Juglans cinerea, L.
B. " nigra, L.
B. Carya alba, Nutt.
B. " amara, Nutt.

CUPULIFERÆ.

B. Quercus alba, L.
Quercus macrocarpa, Mx. East Flamboro' and Burford.
B. Quercus coccinea, Wang, var. tinctoria.
B. Ca tanea vesca, L., var. Americana, Mx.
B. Fagus ferruginea, Ait.
B. Corylus rostrata, Ait.
B. Ostrya Virginica, Willd.
B. Carpinus Americana, Mx.

BETULACEÆ.

B. Betula lenta, L.
B. " papyracea, Ait.
B. Alnus incana, Willd.

SALICACEÆ.

† * Salix tristis, Ait. Rocks near Ancaster.
B. Salix humilis, Marshall.
B. " nigra, Marshall.
B. Populus tremuloides, Mx.
B. " grandidentata, Mx.
B. " balsamifera, L.

CONIFERÆ.

B. Pinus strobus, L.
Abies nigra, Poir. Millgrove.
" alba, Mx. Brock Road.
B. Abies balsamea, Marshall. West Flamboro'.
Larix Americana, Mx.
B. Thuja occidentalis, L.
B. Juniperus sabina, L., var. procumbens, Pursh.
* B. Taxus baccata, L., var. Canadensis, Gray.

ARACEÆ.

B. Arisæma triphyllum, Torr.
B. Calla palustris, L.
B. Symplocarpus fœtidus, Salisb.
B. Acorus Calamus, L.

LEMNACEÆ.

Lemna minor, L. Dundas Marsh.

TYPHACEÆ.

B. Typha latifolia, L.
B. Sparganium eurycarpum, Engelm.
B. Sparganium simplex, Hudson, var. angustifolium, Gray.

NAIADACEÆ.

B. Potamogeton natans, L.
B. " lucens, L. [var. minor.]
B. " perfoliatus, L.
B. " compressus, L.
B. " pectinatus, L.

ALISMACEÆ.

B. Alisma plantago, L., var. Americanum, Gray.
B. Sagittaria variabilis, Engelm.

HYDROCHARIDACEÆ.

B. Anacharis Canadensis, Planchon.
B. Vallisneria spiralis, L. Kingston. [Hamilton.]

ORCHIDACEÆ.

B. Orchis spectabilis, L.
Habenaria tridentata, Luidl.
" virescens, Spreng.
Habenaria viridis, R. Br., var. bracteata, Reichenbach.
Habenaria hyperborea, R. Br.
Habenaria rotundifolia, Richardson. Galt.
B. Habenaria Hookeri, Torr.
" orbiculata, Torr.
Habenaria leucophæa, Gray. Marsh near Millgrove.
Habenaria psychodes, Gray.
" fimbriata, R. Br.
B. Goodyera pubescens, R. Br.
Spiranthes cernua, Richardson.
Pogonia ophioglossoides, Nutt.
Calypso borealis, Salisb.
Corallorhiza innata, R. Br.
B. " multiflora, Nutt.
Cypripedium arietinum, R. Br. Goderich.

ORCHIDACEÆ—*Continued.*

Cypripedium parviflorum, Salisb.
B. " pubescens, Willd.
Cypripedium spectabile, Swartz. Lake Medad.
Cypripedium acaule, Ait. Millgrove Marsh.

AMARYLLIDACEÆ.

Hypoxys erecta, L.

IRIDACEÆ.

B. Iris versicolor, L.
B. Sisyrinchium Bermudiana, L., var. anceps, Gray.

SMILACEÆ.

Smilax rotundifolia, L. [Probably S. herbacea.]

LILIACEÆ.

Trillium grandiflorum, Salisb.
B. " erectum, L.
B. Trillium erectum, L., var. album, Pursh.
† * Trillium viride. Woods near Waterdown Road, 14th May, 1862. [A specimen with green petals; probably an aberrant form of T. erectum, L., var. album, Pursh.]
Medeola Virginica, L.
Zygadenus glaucus, Nutt. Galt.
Tofieldia glutinosa, Willd. Collingwood.
Uvularia perfoliata, L. [Probably U. grandiflora, Smith.]
B. Prosartes lanuginosa, Don.
B. Streptopus roseus, Mx.
Clintonia borealis, Raf.
B. Smilacina racemosa, Desf.
B. " stellata, Desf.
" trifolia, Desf.
B. " bifolia, Ker.
B. Polygonatum biflorum, Ell.
Lilium Philadelphicum, L.
" Canadense, L. Ancaster.
B. Erythronium Americanum, Smith.

JUNCACEÆ.

B. Luzula pilosa, Willd.
B. " campestris, D. C.
B. Juncus effusus, L.
* Juncus acuminatus, Mx. The Beach.

PONTEDERIACEÆ.

Pontederia cordata, L. The Beach. Rare.
B. Schollera graminea, Willd.

CYPERACEÆ.

B. Eleocharis obtusa, Schultes.
B. " acicularis, R. Br.
Scirpus pungens, Vahl.
B. " validus, Vahl.
Eriophorum Virginicum, L.
" polystachyon, L.
B. Carex polytrichoides, Muhl.
B. " vulpinoidea, Mx.
B. " stricta, Lam.
B. " aurea, Nutt.
" plantaginea, Lam.
B. " Pennsylvanica, Lam.
B. " riparia, Curtis.
B. Carex lupulina, Muhl. [Wrong, = C. riparia, Curtis.]

GRAMINEÆ.

* B. Leersia Virginica, Willd.
B. " oryzoides, Swartz.
B. Alopecurus aristulatus, Mx.
B. Phleum PRATENSE, L.
B. Agrostis scabra, Willd.
B. " vulgaris, With.
B. " alba, L.
† * Muhlenbergia diffusa, Schreber.
B. Calamagrostis Canadensis, Beauv.
Oryzopsis asperifolia, Mx.
† * Eleusine INDICA, Gærtn.
Dactylis GLOMERATA, L.
B. Eatonia Pennsylvanica, Gray.
Glyceria elongata, Trin.
B. " nervata, Trin.
B. " pallida, Trin.
B. Poa compressa, L.
B. " serotina, Ehrhart.
B. " pratensis, L.
Festuca tenella, Willd.
* B. Festuca ELATIOR, L., var. pratensis, Gray.
Festuca nutans, Willd.
B. Bromus SECALINUS, L.
* Lolium PERENNE, L.
B. Triticum repens, L.
Elymus Virginicus, L.
B. " Canadensis, L.
B. Danthonia spicata, Beauv.
Aira flexuosa, L.
Anthoxanthum ODORATUM, L.
B. Panicum GLABRUM, Gaudin.
* B. " SANGUINALE, L.
B. " capillare, L.

GRAMINEÆ—*Continued.*

B. Panicum latifolium, L.
B. " dichotomum. L.
B. " depauperatum, Muhl.
B. " CRUS-GALLI, L.
* B. Panicum CRUS-GALLI, L., var. hispidum.
B. Setaria GLAUCA, Beauv.
B. Andropogon furcatus, Muhl.

EQUISETACEÆ.

B. Equisetum arvense, L.
Equisetum pratense, Ehrh. University Park, Toronto.
B. Equisetum limosum, L.
" palustre, L.
B. " hiemale, L.

FILICES.

B. Polypodium vulgare, L.
B. Adiantum pedatum, L.
B. Pteris aquilina, L.
Pellæa atropurpurea, Link.
Pellæa gracilis, Hook. Rivière du Loup.
Asplenium Trichomanes.
" viride, Hudson. Gaspe.
" thelyptercides, Mx.
B. " Filix-fœmina, Bernh.
B. Camptosorus rhizophyllus, Link.
Phegopteris hexagonoptera, Fée. Parry Sound.
Phegopteris Dryopteris, Fée.
B. Aspidium Thelypteris, Swartz.
" Noveboracense, Willd.
Aspidium fragrans, Swartz. River Saguenay.
Aspidium spinulosum, Swartz, var. dilatatum.

FILICES—*Continued.*

* Aspidium spinulosum, Swartz, var dumetorum.
Aspidium spinulosum, Swartz, var. Boottii.
B. Aspidium marginale, Swartz.
B. " acrostichoides, Swartz.
B. Cystopteris bulbifera, Bernh.
" fragilis, Bernh.
Struthiopteris Germanica, Willd.
B. Onoclea sensibilis, L.
Woodsia Ilvensis, R. Br. River Saguenay.
Woodsia glabella, R. Br. River Saguenay.
Dicksonia punctilobula, Kunze. Parry Sound.
Osmunda regalis, L.
B. " Claytoniana, L.
B. " cinnamomea, L.
Botrychium Virginicum, Swartz.

LYCOPODIACEÆ.

Lycopodium annotinum, L. Bruce Mines.
Lycopodium dendroideum, Mx. Bruce Mines.
Lycopodium clavatum, L. Bruce Mines and woods on the Waterdown Road.

HYDROPTERIDES.

* Azolla Caroliniana, Willd. The Beach.

CHARACEÆ.

Chara vulgaris, L. Lake Medad and Galt.

SUPPLEMENTARY LIST.

BY J. M. BUCHAN.

Ranunculus aquatilis, L., var. trichophyllus, Chaix.
Nasturtium palustre, D. C., var. hispidum, Gray.
† * Dentaria heterophylla, Nutt.
Cardamine rhomboidea, D. C.
" hirsuta, L.
Arabis hirsuta, Scop.
Camelina SATIVA, Crantz. Paris.
Lepidium RUDERALE, L.
" CAMPESTRE. L.
Raphanus RAPHANISTRUM. Barrie.
Viola Selkirkii, Pursh, Goldie, 1822. Walkerton and Owen Sound.
Lechæa minor, Lam.
Hypericum pyramidatum, Ait. Fullarton.
Saponaria OFFICINALIS, L.
Cerastium VISCOSUM, L.
Portulaca GRANDIFLORA, Hook.
Claytonia Caroliniana, Muhl. Walkerton and Owen Sound.

Malva MOSCHATA, L.
Vitis riparia, Mx.
Melilotus OFFICINALIS, Willd. Toronto.
Desmodium cuspidatum, Torr. and Gr.
* Potentilla paradoxa, Nutt.
Rosa Carolina, L.
" RUBIGINOSA, L.
Cratægus tomentosa, L., var. pyrifolia, Gray.
Amelanchier Canadensis. Torr. and Gr., var. oblongifolia.
Amelanchier Canadensis, Torr. and Gr. A variety with notched petals, 2–4 feet high, flowering a few days later than the preceding variety.
Ribes cynosbati, L.
" lacustre, Poir.
Pastinaca SATIVA, L.
Archangelica atropurpurea, Hoffm. Dundas and Fullarton.
Carum CARUI, L.
Lonicera hirsuta, Eaton.
Dipsacus silvestris, Mill. Hamilton and Grimsby. Rare.
Aster azureus, Lindl.
" sagittifolius, Willd.
" tenuifolius, L.
" ptarmicoides, Torr. and Gr.
Erigeron annuum, Pers.
Solidago squarrosa, Muhl.
" bicolor, L., var. concolor.
* " speciosa, Nutt.
" Virga-aurea, L., var. humilis.
" rigida, L.
* " patula, Muhl.
" arguta, Ait, var. juncea.
† * " " " scabrella.
" Muhlenbergii, Torr. and Gr.
" serotina, Ait.
Inula HELENIUM, L.
† * Polymnia Canadensis, L., var. discoidea.
Bidens Beckii, Torr.
Maruta COTULA, D. C.
Artemisia Canadensis, Mx.
Cirsium LANCEOLATUM, Scop.
Onopordon ACANTHIUM, L.
Hieracium paniculatum, L.
Taraxacum Dens-leonis, Desf.
Vaccinium vacillans, Solander.
Pyrola secunda, L.
Ilex verticillata, Gray.
Aphyllon uniflorum, Torr. and Gr.
Verbascum THAPSUS, L.
" BLATTARIA, L.
Ilysanthes gratioloides, Benth.
Satureia HORTENSIS, L.
Lithospermum longiflorum, Spreng.
* Myosotis palustris, Withering, var. laxa.
Atriplex patula, L.
Polygonum incarnatum, Ell.
" hydropiper, L.
" acre, H. B. K.
" dumetorum, L.
Fagopyrum ESCULENTUM, Moench.
Rumex CRISPUS, L.
Quercus Prinus, L., var. acuminatus.
Salix discolor, Muhl.
" cordata, Muhl.
" livida, Muhl, var. occidentalis.
" lucida, Muhl.
Abies Canadensis, Mx.
Lemna polyrrhiza, L.
Potamogeton amplifolius, Tuckerman.
* Dioscorea villosa, L.
Smilax hispida, Muhl.
" herbacea, L.
Uvularia grandiflora, Smith.
Lilium superbum, L.
Allium tricoccum, Ait.
Juncus bufonius, L.
" tenuis, Willd.
Juncus Alpinus, Villars, var. insignis, Fries.
Juncus nodosus, L.
Cyperus diandrus, Torr.
" strigosus, L.
Eleocharis palustris, R. Br.
Scirpus fluviatilis, Gray.
" atrovirens, Muhl.
" Eriophorum, Mx., var. cyperinus.
Carex bromoides, Schk.
" teretiuscula, Good.
" stipata, Muhl.
" rosea, Sahk.
" trisperma, Dew.
" scoparia, Schk.
" lagopodioides, Schk.
" cristata, Schw.
Carex straminea, Schk., var. tenera, Dew.
Carex gracillima, Schw.
" platyphylla, Carey.
" laxiflora, Lam., var. blanda.
" varia, Muhl.
" tentaculata, Muhl.
" intumescens, Rudge.
" lupulina, Muhl.
" retrorsa, Schw.
Zizania aquatica, L.
† * Vilfa aspera, Beauv.
" vaginæflora, Torr.
Sporobolus cryptandrus, Gray.
Agrostis perennans, Tuckerman.
Muhlenbergia Mexicana, Trin.

Glyceria aquatica, Smith.
" fluitans, R. Br.
Poa annua, L.
" debilis, Torr.
Bromus ciliatus, L.
Phragmites communis, Trin.
* Elymus Canadensis, L., var. glaucifolius.
Gymnostichum Hystrix, Schreb.
Phalaris arundinacea, L.
Setaria VIRIDIS, Beauv.
* Cenchrus tribuloides, L.
Andropogon scoparius, Mx.
Sorghum nutans, Gray.
Botrychium lunarioides, Swartz.

MEAN MONTHLY TEMPERATURES OF BELLEVILLE AND HAMILTON.

	BELLEVILLE.	HAMILTON.
January	18.64	23.41
February	20.47	24.34
March	26 71	28.87
April	42.43	43.14
May	54 08	53.53
June	66.12	65.78
July	70.73	72.39
August	68.17	69.43
September	58.92	60.56
October	46.91	48.50
November	33.04	35.71
December	21.30	25.77

LIST OF PLANTS MENTIONED IN OUR LISTS THAT DO NOT OCCUR AT BELLEVILLE.

	DATE OF FLOWERING.	DIRECTION IN WHICH THEY EXTEND FURTHEST.
Thalictrum anemonoides, Mx.	May	Southern.
Liriodendron Tulipifera, L.	June	Southern.
Dentaria heterophylla, Nutt	May	Southern.
Arabis lyrata, L. [Niagara]	July	Northern.
" sagittata, D. C. [Galt]	June	
Lepidium RUDERALE, L.		
" CAMPESTRE, L.		
Polanisia graveolens, Raf.	July & Aug.	Southern.
Hypericum Kalmianum, L.	Aug.	Northern.
Erodium CICUTARIUM, L'Her		
Vitis riparia, Mx.	May	South-western.
Euonymus Americanus, L., var. obovatus	June	South-western.
Polygala Nuttallii, Torr. and Gr.	Aug.	South-eastern.
" verticillata, L.	Aug.	Southern.
Trifolium ARVENSE, L.		
Lathyrus PRATENSIS, L.		
Lespedeza repens, Torr. and Gr.	Aug.	Southern.
" violacea, Pers.	Aug.	Southern.
Amelanchier Canadensis, Torr. & Gr., var. rotundifolia	May	
Spiræa opulifolia, L. [Valley of the Thames]	June	Western.
Pyrus arbutifolia, L., var. melanocarpa. [Millgrove]	June	
Gillenia trifoliata, Moench	June	Southern.
Rosa MICRANTHA, Smith		

PLANTS THAT DO NOT OCCUR AT BELLEVILLE—*Continued.*

	Date of Flowering.	Direction in which they extend furthest.
Potentilla paradoxa, Nutt.	Spring	South-western.
Conioselinum Canadense, Torr. and Gr.	Aug.	Northern.
Erigenia bulbosa, Nutt. [St. Thomas]	April	Southern.
Cornus florida, L.	June	Southern.
Lonicera flava, Sims	June	Southern.
Aster lævis, L., var. lævigatus	Aug. & Sept.	
" " cyaneus	Aug. & Sept.	
Aster graminifolius, Pursh. [Millgrove]	Aug.	Northern.
Solidago virga-aurea, L., var. humilis	Sept.	Northern.
" rigida, L.	Sept.	South-western.
" patula, Muhl	Sept.	
" arguta, Ait., var. scabrella	Sept.	Western.
Polymnia Canadensis, L., var. discoidea	Aug.	South-western.
Xanthium SPINOSUM, L.		
Senecio PALUSTRIS, Hook		
Onopordon ACANTHIUM, L.		
Leontodon AUTUMNALE, L.		
Hieracium venosum, L.	Sept.	
" paniculatum, L.	Aug.	
Nabalus Fraseri, D. C.	Aug.	South-eastern.
Campanula Americana, L.	July	Southern.
Pyrola rotundifolia, L., var. asarifolia. [Lake Medad]	June	Northern.
Pyrola rotundifolia, L., var. uliginosa. [Lake Medad]	June	Northern.
Ledum palustre, L. [Welland Peat-bog]	June	Northern.
Primula Mistassinica, Mx. [Paris]	May	North-western.
Anagallis ARVENSIS, L		
Verbascum BLATTARIA, L.		
Veronica officinalis, L.	June	Southern.
" TRIPHYLLOS		
Gerardia tenuifolia, Vahl.	Aug.	Southern.
" flava, L.	Aug.	Southern.
" quercifolia, Pursh	Aug.	Southern.
" pedicularia, L.	Aug.	Southern.
Pycnanthemum incanum, Mx.	Aug.	Southern.
Calamintha glabella, Benth., var. Nuttallii, Gray. [Niagara Falls]	July	South-western.
Collinsonia Canadensis, L.	Aug.	Southern.
Monarda didyma, L.	Aug.	Northern.
Onosmodium Carolinianum, D. C.	Aug.	Southern.
Myosotis palustris, With., var. laxa	July	Northern.
Physalis viscosa, L.	July	Southern.
Halenia deflexa, Grisebach. [Ancaster]	Aug.	Northern.
Blitum BONUS HENRICUS, Reichenbach		
Amarantus VIRIDIS, L.		
Sassafras officinale, Nees	May	Southern.
Euphorbia hypericifolia, L	Sept.	Southern.
" PLATYPHYLLA, L.		
" obtusata, Pursh	Sept.	Southern.
Platanus occidentalis, L.	May	Southern.
Juglans nigra, L.	May	Southern.
Castanea vesca, L., var. Americana, L.	June	Southern.
Salix tristis, Ait	May	

PLANTS THAT DO NOT OCCUR AT BELLEVILLE—*Continued.*

	Date of Flowering.	Direction in which they extend furthest.
Habenaria leucophœa, Nutt. [Millgrove]	July	South-western.
" fimbriata, Lindl.	Aug.	North-eastern.
Dioscorea villosa, L.	July	Southern.
Lilium superbum, L.	July	Southern.
Prosartes lanuginosa, Don	June	Southern.
Tofieldia glutinosa, Willd. [Collingwood]	Aug.	Northern.
Juncus acuminatus, Mx.	June	South-western.
Leersia Virginica, Willd.	Aug. & Sept.	Southern.
Elymus Canadensis, L., var. glaucifolius	Aug.	
Vilfa aspera, Beauv.	Sept.	Southern.
Lolium PERENNE, L.		
Muhlenbergia diffusa	July	Southern.
Eleusine INDICA, Gærtn.		
Festuca ELATIOR, L., var. pratensis		
Panicum SANGUINALE, L.		
" CRUS-GALLI, L., var. hispidum		
Cenchrus tribuloides, L.	Aug.	
Pellæa atropurpurea, Link.	July	
Aspidium spinulosum, Swz., var. dumetorum	July	Northern.
Azolla Caroliniana, Willd.		Southern.

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

(Continued from page 217.)

A.

Abino Creek, in the County of Lincoln, empties itself into Lake Erie, in the township of Bertie, at the head of the bay, east of Point Abino.

Abino Point, in the township of Bertie, on Lake Erie, is nine or ten miles west of Fort Erie. [In a letter of Chief Brant's, dated 1794, given in Perkins' "Annals of the West," p. 396, this place is spoken of as "Point Appineau." *Abino* is probably an abridged form of the Otchipway word *abino-dgi*, "child." In Lake Superior there is a point named Gaanagouassgokag, "Little Girl's Point."]

Addington County is bounded on the east by the County of Frontenac; on the south by Lake Ontario, to the westernmost boundary of the late township of Ernest Town; and on the west by the township of Fredericksburgh, running north 31 degrees west, until it meets the Ottawa or Grand River, and thence descending that river until it meets the north-westernmost boundary of the County of Frontenac. This county comprehends all the islands nearest to it. [In the 2nd edition, this article reads as follows: "*Addington* and *Lenox County* is bounded on the east by the County of Frontenac, on the south by Lake Ontario, and on the west by the County of Hastings. This county comprehends all the islands nearest to it; it sends, in conjunction with Hastings and Northumberland, one representative to the Provincial Parliament." *Addington* perpetuates the name of Mr. Speaker Addington, 1796, afterwards Lord Sidmouth. *Lenox*, more usually Lennox, was a compliment to Charles Lennox, third Duke of Richmond, Master of the Ordnance in the reign of George III.]

Adolphus Town is situated in the Bay of Quinté: it is bounded southerly, westerly and northerly by the waters of the bay, and easterly by the township of Fredericksburgh, in the Midland District. The courts of General Quarter Sessions of the Peace are holden here annually, the second Tuesday in January and July.

Adolphus Town, the township of, in the County of Lenox, lies to the westward of Fredericksburgh, in the Bay of Quinté. ["Adolphus," from Prince Adolphus, Duke of Cambridge, youngest son of George III.]

Aldborough Township, in the County of Suffolk, lies to the west of Dunwich: it is washed by the Thames on the north and by Lake Erie on the south. [Probably from Aldborough in Suffolk, England, a fishing-town at the mouth of the River Alde. There is another Aldborough in the West Riding of York, the *Isurium Brigantium* of the Roman period.]

Alempignon Lake lies to the northward of Lake Superior, and between it and the mountains which bound the Hudson's Bay Company and New South Wales to the southward. It contains several small islands, and is about the size of Lake Nipissing. [This is the same as Lake Nipigon, now familiar to tourists. In Otchipway, Nibegom: "I wait for game in the night on the water in a canoe." (See Baraga's Otchipway Dictionary, p. 279.) In a list of names in Schoolcraft's *American Indians* (p. 25, n.), to *Alempigon* is subjoined the note: "Improperly written for Nipigon, a small lake north of Lake Superior."]

Alfred Township, in the County of Glengarry, is the third township in ascending the Ottawa river.

Alnwick Township, in the County of Northumberland, lies in the rear and north of Haldimand.

Alumets les, on the Ottawa river, above the Rapids, which are higher than Rivière du Nord. [*Allumettes:* Matches for enkindling a light, &c.]

Alured Cape, in the township of Clarke, north side of Lake Ontario. [*Alured* was the baptismal name of General Clarke (afterwards Sir Alured), from whom the township had its name. It is an archaic form of *Alfred.*]

Ameliasburgh Township, in the County of Prince Edward, is the westernmost township of that county, bounded by the carrying place which leads from the head of the Bay of Quinté to Lake Ontario.

and is washed by the waters of the bay and the lake. [*Amelia*, from the name of a daughter of George III.]

Amherstburgh, the military post and garrison now building at the mouth of Detroit river, in the township of Malden.

Amherst Island, in the County of Ontario, formerly called Isle Tonti, contains about 16,000 acres: it lies opposite to Ernest Town and part of Fredericksburgh, in Lake Ontario, towards the entrance of the Bay of Quinté. [*Amherst*, from the General of that name, to whom Vaudreuil capitulated in 1760.]

Amikoues, River of the, runs into Lake Huron from the north shore, east of the Mississaga river. [*Amikoues* is Otchipway for "beaver-lodge."]

Ancaster Township lies to the southward of Dundas Street, and is bounded on the east by Barton and Glanford. [From *Ancaster* in Lincolnshire, the ancient Roman station, *Crococalana*. It gave the title of duke to the head of the Bertie family (the Earl of Lindsey's) up to 1806.]

Angousoka River, now called the Shannon, empties itself into the Bay of Quinté.

Annequionchecom Lake: one of the lakes on the communication between Rice Lake and Lake Simcoe. [*Annequi* denotes "succession." The native names of other lakes in this chain are given in Capt. Owen's chart, published by the Admiralty in 1838. *Canenandacokank*, Balsam Lake; *Nummeysaukyagun*, Sturgeon Lake. Two lakes marked *Shebaughtickwyong*, one the "West," the other the "East" Lake. (*Shebaughtick* gives the notion of *stiffness*.) *Caughwawkuonykauk*, Tripe Lake. The river by which the lakes in the township of Reach empty into Sturgeon Lake is marked *Yawbashkaskauk*. (The modern much-vulgarized "Bobcaygeon" appears on Owen's chart as "Babakaijuen;" doubtless a better approximation to the Otchipway word. *Baba* denotes "repetition." *Kakabikedjiwan*= "There is a strong rapid over rocks.")]

Ann's St. Island, in Lake Superior, lies to the southward of Isle Hocquart.

Apostles, the Twelve, lie off the southern cape which makes West Bay, in Lake Superior.

Appanee River, running through the front of the township of Camden, divides Fredericksburgh from Richmond, and empties itself into the Bay of Quinté at the Mohawk settlement. [*Appannee*= Flour. This name has now assumed the form of *Napanee*.]

Atokas, River aux, runs into Lake Ontario, west of York, and the River Humber. The mouth of this river is the boundary between the Mississaga lands and the East Riding of the County of York. It is now generally called the Etobicoke. [*Atokas* appears to be a French abbreviation of the native name, which meant "a place where there are alder-trees." "Etobicoke" has retained more of the original expression. The early surveyor, Augustus Jones, writes the word as "Atobicoake" in one of his letters, and designates another stream at "the head of the lake" by the same name, which he interprets "Black Alder Creek," and notes that it is "the creek near Morden's," *i.e.*, the solitary house (in Jones' day) at the point where "Dundas Street" struck the stream of which Burlington Bay is, as it were, the estuary. Baraga, in his Otchipway Dictionary, gives "Wadopiki" as "Alder-forest;" and "Alder-point," Lake Superior, is "Nadopikan." Comp. Apanee, Napanee.]

Attica Bay, on the south side of the Ottawa river, in Monsieur de Longueil's seigniory, lies at the mouth of the river of the same name. [See note on next article.]

Attica, River au, runs into the Ottawa river, in Monsieur de Longueil's seigniory. [This ought probably to be *Rivière aux Atticas*. Drake, in his work on the Indians of North America, mentions the "Attikamigues" (Whitefish) as a tribe "in the North of Canada, destroyed by Pestilence in 1670."]

Augusta Township, in the County of Grenville, is the eighth township in ascending the River St. Lawrence. [*Augusta* is probably a compliment to the King's daughter, *Augusta Sophia*.]

CANADIAN INSTITUTE.

ANNUAL REPORT OF THE COUNCIL FOR THE YEAR 1872–'73.

The Council of the Canadian Institute have much pleasure in reporting, at the end of another year, the increasing interest which has been manifested in its proceedings, and the value of some of the communications which have been made at their meetings. A strong desire is felt by some of those who take the greatest interest in the continued growth of the Institute, that steps should be taken as soon as possible for providing more adequate accommodation in a suitable building, and for adding to the library, as a collection of books of reference, a more generally attractive lending library for the use of members at large. In this way an increased membership and a larger attendance at its meetings may be most satisfactorily secured.

The Council would also express their satisfaction at the revival of an interest in the most valuable work of the Institute as a scientific society by some of its junior members, and the communication by them to the meetings and to the Journal of papers of an original character, and embodying the results of experiment and field study. In this way the increased value of the Journal as a scientific and literary periodical will be most beneficially secured, and the true work of the Institute most effectually accomplished.

The following is the statement of the proceedings of the Society for the past year, from 1st December, 1872, to the 30th November, 1873:—

MEMBERSHIP.

The present state of Membership:

Members at commencement of Session		334
Members elected during the Session		8
		342
Deduct.		
Deaths during the year	2	
Withdrawn	6	
	—	8
Total 30th November, 1873		334
Composed of		
Honorary Members		5
Life Members		19
Corresponding Members		4
Ordinary Members		306
Total		334

COMMUNICATIONS.

The following valuable and instructive papers and communications were read and received at the ordinary meetings held during the Session:

August 30, 1872.—"On Respiratory Murmurs," by J. R. Leaming, M. D., of St. Luke's Hospital, New York.

December 13, 1872.—"On Diseased Retina," by A. M. Rosebrugh, M. D.

December 20, 1872.—"On the Use of the Syphon Tube in Evacuating the Contents of the Stomach," by A. M. Rosebrugh, M. D.

January 10, 1873.—Annual Address of the Chairman of the Medical Section, C. B. Hall, M. D.

January 11, 1873.—Inaugural Address of the President, "Merton College and Canada," by Rev. H. Scadding, D. D.

January 17, 1873.—A Sketch of the History of the Medical Profession," by N. Agnew, M. D.

January 18, 1873.—"Dredgings of Lake Ontario," by Prof. H. A. Nicholson, M. D., D. Sc., etc.

January 24, 1873.—"Chloral Hydrate," by A. D. Williams, M. D.

January 25, 1873.—"The Supernatural among Savage Nations as an element in the Darwinian Controversy," by Prof. D. Wilson, LL. D.

January 31, 1873.—"Delirium Tremens," by C. Archibald, M. D.

February 1, 1873.—"Some Original Renderings of Passages in the Greek and Latin Classics," by W. D. Pearman, M. A.

February 8, 1873.—"The Correlation of Physical Forces," by A. D. Williams, M. D.

February 15, 1873.—"The Imperial Family of the Cæsars, illustrated by Coins," by Rev. J. McCaul, LL.D.

February 21, 1873.—"Recent Explorations in Africa," by Prof. Wright.

February 28, 1873.—"Acute Rheumatism," by G. Wright, M. D.

March 1, 1873.—"The Elements of Speech," by Mr. Phillips.

March 1, 1873.—"Planetary Influence as affecting Rainfall," by Mr. Bowes.

March 7, 1873.—"Diseases of the Ear," by R. A. Reeve, M. D.

March 8, 1873.—"The Iron Mines of Hull, Canada," by Prof. H. A. Nicholson, M. D., D. Sc., etc.

March 8, 1873.—"The Introduction of Printing into Canada," by Rev. H. Scadding, D. D.

March 14, 1873.—"Placenta Praevia," by W. Oldright, M. A., M. D.

March 15, 1873.—"The Reindeer Period in Scotland," by Prof. D. Wilson, LL.D.

March 22, 1873.—"The Elements of Human Speech," by John Phillips, Esq.

March 29, 1873.—"The Wealden of England," by Prof. G. Buckland.

April 5, 1873.—"The Horites," by Rev. J. Campbell, M. A.

May 16, 1873.—"Excision of the Elbow Joint," by W. Hillary, M. D.

S. SPREULL, TREASURER, IN ACCOUNT WITH THE CANADIAN INSTITUTE, FROM DECEMBER 1ST, 1872, TO DECEMBER 1ST, 1873.

Debtor.

Balance from last year		$579 04
Subscriptions collected by Librarian	$252 00	
" " Treasurer	16 00	
		268 00
Government Allowance—		
April 19th, half year	$375 00	
October 3rd, half year	375 00	
		750 00
Dividend on Stock Provincial Building Society—		
April 12th, half year	$120 00	
October 10th, half year	120 00	
		240 00
Rents		151 70
Journals sold		6 00
Interest from Provincial Building Society to June		5 25
		$1,999 99

Creditor.

Insurance in Western, on Furniture, &c	$75 00	
" Royal, on House	22 50	
		$97 50
Mrs. Johnston, by order of Council	$84 00	
Librarian	252 00	
		336 00
Copp, Clark & Co., Printing, &c	$157 70	
" " "	302 83	
J. Bain, Magazines and Reviews	15 25	
		475 78
Editor's Honorarium (completion of vol. xiii)		240 00
Instalment on six shares Provincial Building Society		130 36
Coal and Wood		54 50
Advertising		55 70
Postages	$24 75	
Express	8 20	
Telegraphing	1 09	
		34 04
Coal Oil, Lamps, &c		8 25
Stationery		1 50
Wages		4 25
Balance		562 11
		$1,999 99

Toronto, 1st December, 1873.

SAMUEL SPREULL, *Treasurer.*

FINANCIAL STATEMENT OF THE CANADIAN INSTITUTE,

DECEMBER 1ST, 1873.

Balance in Deposit	$562 11
Building Fund—	
30 Shares in Provincial Permanent Building Society	3,330 00
6 " Accumulating Stock " " paid	292 52
Total	$4,184 63

The undersigned Auditors have compared the vouchers for the items of these accounts with the Cash Book, and find them to agree. The balance in the hands of the Treasurer is $562 11.

W. J. MACDONELL.
A. M. ROSEBRUGH.

TORONTO, April 12, 1874.

APPENDIX.

DONATIONS OF BOOKS AND PAMPHLETS.

1. Journal of the Royal Geographical Society, vol. xli, 1871.
2. Catalogue of the Library of the Royal Geographical Society, 1870.
3. Proceedings of the Royal Geographical Society, vol. xv, No. 5, vol. xvi, vol. xvii, Nos. 1, 2.
4. Quarterly Journal of the Geological Society, vol. xxvii, Part 4, vol. xxviii, vol. xxix, Parts 1, 2, 3.
5. List of the Geological Society, 1871, 1872.
6. Journal of the Royal Asiatic Society, vol. v, Part 2, vol. vi, Parts 1, 2.
7. Transactions of the Royal Society of Edinburgh, 1870-71, 1871-72.
8. Proceedings " " " 1870-71, 1871-72.
9. Journal of the Anthropological Institute, vol. i, No. 3, vol. ii, vol. iii, No. 1.
10. List " " " 1872.
11. Transactions of the Royal Scottish Society of Arts, vol. viii, Parts 3, 4.
12. Proceedings of the Philosophical Society of Glasgow, 1871-72, 1872-73.
13. Journal of the Linnæan Society; Zoology, Nos. 53–56; Botany, Nos. 66–72.
14. Proceedings " " 1871-72, 1872-73.
15. List " " 1872, and additions to the Library, 1870-71, 1871-72.
16. Transactions of the Edinburgh Geological Society, vol. ii, Parts 1, 2.
17. Proceedings of the Literary and Philosophical Society of Liverpool, No. 26.
18. Journal of the Royal Dublin Society, vol. vi, No. 2.
19. Proceedings of the Royal Colonial Institute, 1872.
20. Reports of the Belfast Naturalists' Field Club, 1868-69, 1870-71, 1871-72.
21. Proceedings of the Society of Antiquaries of Scotland, vol. vii, Part 2; vol. viii; vol. ix, Part 1.
22. Weekly Journal of the Society of Arts, London, September 1872–June 1873.
23. Nature, January–June, 1873.

24. The European Mail, London, May 1872–March 1873.
25. The British Trade Journal, January and July, 1873.
26. Memoirs of the Geological Survey of India, vols. viii, ix.
27. Records " " " vols. v, 1, 2, 3, 4.
28. Palæontologia Indica, vol. iv, 1, 2.
29. Bernard Quaritch's Catalogues of Second-hand Books.
30. Annales des Mines, tome ii, 7e Serie, Parts 4, 5, 6; tome iii, 7e Serie, Parts 1, 2, 3.
31. Bulletin de la Société Géologique de France, tomes xv, xviii, xxv.
32. Revue de Géologie. MM. Delesse et Lapparent, 1872.
33. Bulletin de l'Athénée Oriental, Juin, 1869.
34. Programme du Congrès International d'Anthropologie et d'Archaeologie, 1872.
35. Verhandlungen der zoologisch-botanischen Gesellschaft, Wien, 1872.
36. Offenbacher Verein für Naturkunde, 1869-70, 1870-71.
37. Abhandlungen der naturwissenschaftlichen Vereins, Bremen, 1872, 1873.
38. Beilage " " " "
39. Cosmos, di Guido Cora, Torino, Nos. 1, 2, 3, 4.
40. Öfversigt af Kongliga Vetenskaps Akademiens, 1870, Parts 1, 2.
41. Lefnadsteckninger öfver Kongliga Vetenskaps Akademiens, 1870-71.
42. Handlingar af " " " 1868, 1869, 1870.
43. Acta Universitatis Lundensis, 1868, 1869, 1870.
44. Minnesteckning öfver E. G. Geijer, af F. F. Carlson.
45. Transactions of the Academy of Science of St. Louis, 1873.
46. Bulletin of the Essex Institute, 1872.
47. Proceedings of the Academy of Natural Sciences, Philadelphia, 1872, 1873. January–September.
48. Proceedings of the American Antiquarian Society, Nos. 58, 59, 60.
49. American Journal of Science and Arts, December 1872–August 1873.
50. Journal of the Franklin Institute, 4 Nos.
51. Annals of the Lyceum of Natural History, New York, vol. x, Nos. 1-7.
52. Proceedings " " " 1870-71.
53. Constitution of the Minnesota Academy of Natural Sciences, 1873.
54. Memoirs of the Boston Society of Natural History, vol. ii, Part 2, No. 3.
55. Proceedings " " " 1872.
56. Report of the U. S. Geological Survey of Montana, 42nd Congress, 2nd Session.
57. Statistics of Mines and Mining west of the Rocky Mountains, 42nd Congress. 2nd Session.
58. Fifth and Sixth Annual Reports of the Trustees of the Peabody Academy of Science.
59. Fifty-fourth and Fifty-fifth Annual Reports of the Trustees of the New York State Library.
60. Twenty-fourth Annual Report of the New York State Museum.
61. Twenty-first Annual Report of the Regents of the New York State University.
62. Meteorology of New York, 1850-1863.

63. The New York Civil List, 1869.
64. Manual for the New York State Legislature, 1871.
65. The Canadian Entomologist, vol. iv, vol. v, Nos. 1-6.
66. Report of the Entomological Society of Ontario, 1872.
67. The Canadian Naturalist, Montreal, vol. vii, Nos. 1-3.
68. The Pharmaceutical Journal, Toronto, vol. vi, Nos. 5-12; vol. vii, Nos 1-4.
69. Report of the Geological Survey of Canada for 1871-72.
70. Transactions of the Nova Scotian Institute of Natural Science, 1871-72.
71. Transactions of the Literary and Historical Society of Quebec, 1871-72.
72. Journal of Education, Ontario, vol. xxv, No. 12; vol. xxvi, Nos. 1–11.
73. Calendar of McGill University, 1873-74, Faculty of Arts.
74. " " " " " Medicine.
75. Second Report of the Meteorological Office of the Dominion of Canada.
76. Circular of the Commercial College. Odell and Trout.
77. The Canadian Annual, 1873.
78. Sanitary Report on the Colony of Bermuda, 1872. From His Excellency Major-General Lefroy, C. B., F. R. S., Governor and Commander-in-Chief.
79. Agricultural Report on the Colony of Bermuda, 1873. From the same.
80. Phronographie des Chrysomélides de l'Amérique. From the Author, M. C. Stal.
81. Natural Theology of the Doctrine of Forces. From the Author, Prof. B. N. Martin, D. D.
82. Physiology and Psychology of Dreams. From the Author, J. J. O'Dea, M.D.
83. Normal Ovariotomy. From the Author, R. Battey, M. D.
84. Rapport sur une Mission dans l'Amérique du Nord. From the Author, M. Dumaresq.
85. A Phrenologist among the Todas. From the Author.
86. The Ontario Law List. From the Author, J. Rordans, Esq.

The following publications have been subscribed for by the Institute, and received during the year:—

The Edinburgh Review.
The Westminster Review.
The London Quarterly Review.
The British Quarterly Review.
Blackwood's Magazine.
The Contemporary Review.
The Fortnightly Review.
The Saturday Review.
The London Lancet.
The Medical Times and Gazette.
The American Journal of Medical Sciences.
The Half-yearly Abstract of Medical Sciences.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—APRIL, 1874.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	MEAN	Excess of Mean above Normal.	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Re-sult't	MEAN	Rain in inches.	Snow in inches.
1	29.830	29.720	29.594	29.7028	13.8	30.8	27.5	24.95	—19.65	.063	.083	.115	.085	77	47	76	63	N E	S E	S	S 78 E	7.0	8.2	8.6	3.48	7.42	...	...
2	.519	.366	.371	.4183	26.5	43.6	31.1	33.63	— 2.35	.111	.130	.159	.126	77	44	91	68	S W	S W	N	S 51 W	6.0	22.4	16.8	8.29	10.90	...	0.4
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S W	N W	N 72 W	11.0	14.0	10.0	12.74	14.99	...	...
4	.724	.803	.889	.8173	10.2	22.5	19.2	17.73	—19.00	.046	.065	.069	.061	66	53	67	62	N	W	S W	N 59 W	10.0	22.0	3.6	10.79	11.93	...	...
5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	E	E	S 74 E	2.0	13.4	10.2	5.87	6.76	...	5.3
6	.485	.610	.604	.5783	27.2	36.2	32.9	32.22	— 5.28	.132	.143	.168	.151	90	67	89	83	W	S W	S W	S 68 W	11.5	10.2	4.4	7.79	9.30	...	0.2
7	.590	.644	.696	.6445	30.4	39.1	31.9	33.73	— 4.17	.153	.172	.128	.151	90	72	71	77	S W	S	N W	S 81 W	1.0	8.0	1.6	0.84	1.97	...	...
8	.680	.591	.647	.6377	28.6	34.8	32.9	32.57	— 5.72	.131	.117	.161	.142	83	58	85	77	N E	E	Calm.	N 68 E	1.3	11.0	0.0	3.61	3.76	...	...
9	.754	.734	.620	.7023	30.4	36.2	32.2	33.12	— 5.55	.146	.143	.162	.152	85	67	88	80	N	S E	N E	N 24 E	6.6	8.2	5.4	4.93	6.69	...	...
10	.490	.508	.578	.5292	30.8	43.8	34.4	36.38	— 2.65	.155	.127	.124	.132	90	43	62	63	N	S	Calm.	N 45 W	9.0	11.0	0.0	5.16	7.77	...	...
11	.501	.759	30.038	.7868	31.1	25.4	23.2	26.45	—12.97	.159	.070	.095	.109	91	51	77	74	N W	N W	N W	N 46 W	2.0	37.0	13.8	15.62	15.92	...	0.6
12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	S W	N 72 W	4.2	9.4	3.0	1.50	5.34	...	...
13	30.092	.906	29.743	.8780	27.5	39.4	36.9	35.27	— 4.92	.129	.108	.167	.138	86	45	76	69	S	E	N E	S 85 E	5.0	10.5	2.6	4.79	5.72	...	...
14	29.560	.358	.372	.4202	40.2	48.8	50.3	46.55	+ 5.98	.191	.288	.249	.246	76	84	68	77	E	S W	S W	S 7 W	7.0	8.2	4.8	2.20	5.78	.230	...
15	.365	.408	.676	.4935	45.2	46.6	32.6	41.47	+ 0.53	.277	.191	.157	.209	92	59	85	78	W	W	N W	N 69 W	0.8	22.7	19.5	13.32	14.08	...	...
16	.868	.862	.871	.8708	26.8	37.6	34.0	32.87	— 8.45	.116	.125	.156	.126	80	55	79	67	N	S E	Calm.	N 7 W	4.9	8.0	0.0	4.18	5.16	...	...
17	.804	.817	.912	.8513	34.4	32.0	30.8	33.22	— 8.48	.136	.172	.155	.151	68	95	90	80	N E	N E	Calm.	N 65 E	7.5	7.5	0.0	5.83	5.92	...	0.5
18	.984	.986	.854	.9335	31.9	42.0	31.9	34.58	— 7.47	.150	.177	.143	.157	83	66	79	78	S W	S	Calm.	S 3 E	1.7	8.4	0.0	2.23	3.34	...	...
19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S E	N E	N 57 E	1.6	7.0	4.5	1.13	2.90	...	...
20	.532	.140	.138	.2562	30.9	37.3	38.0	38.43	— 4.38	.200	.203	.220	.215	91	91	96	92	N E	E	S W	N 72 E	21.2	21.4	3.2	12.01	14.63	...	...
21	.422	.610	.644	.5760	34.4	40.5	39.1	38.30	— 4.88	.158	.137	.217	.164	79	54	91	71	N W	W	S W	N 61 W	24.7	21.0	4.0	17.05	71.52	.920	...
22	.686	.618	.565	.6202	34.0	46.3	38.0	39.98	— 3.57	.126	.146	.152	.140	64	47	66	57	N W	S	S W	S 17 W	1.1	12.1	1.6	4.28	6.27	Inap.	...
23	.506	.485	.630	.5470	35.5	44.1	30.1	36.80	— 7.15	.168	.161	.092	.131	80	45	54	59	N	N	N	N 6 W	4.5	11.2	15.8	10.01	10.50	...	...
24	.772	.852	.805	.8112	27.2	38.3	31.5	33.48	—10.82	.112	.106	.119	.111	75	35	67	60	N W	S	S E	S 17 W	5.0	13.0	3.5	1.79	6.50	...	...
25	.698	.523	.402	.5232	33.3	37.3	32.9	34.62	—10.05	.134	.169	.186	.167	70	99	99	83	E	E	N E	N 73 E	14.5	18.4	8.4	11.52	11.84	...	...
26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	N W	N W	N 45 W	10.0	25.0	27.0	18.17	18.76	.090	3.2
27	.757	.794	.805	.7887	27.5	40.2	30.8	33.30	—12.12	.108	.084	.098	.099	72	30	57	54	N W	N W	N	N 34 W	23.0	14.4	6.2	17.36	17.63	...	0.8
28	.806	.736	.728	.7532	30.1	37.6	32.2	33.78	—11.98	.105	.091	.095	.101	62	44	52	52	N	N	N	N 6 E	4.6	10.5	16.4	6.60	8.31	...	...
29	.742	.670	.612	.6672	29.3	34.8	33.7	32.72	—13 38	.088	.089	.101	.089	54	40	52	47	N	N W	W	N 24 W	12.5	25.8	10.0	14.14	15.86	...	...
30	.522	.340	.343	.3945	31.9	49.2	35.1	39.50	— 6.98	.128	.103	.147	.131	72	35	72	57	W	W	W	N 85 W	13.8	23.0	8.0	15.44	15.79	...	...
	29.6676	29.6336	29.6455	29.6481	30.20	38.58	32.93	34.23	— 6.86	.137	.136	.145	.139	78	55	76	69	.....	.....	.....	.....	7.83	14.76	7.10	.....	9.64	1.240	11.0

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR APRIL, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest barometer .....30.227 at 7 a.m. on 12th } Monthly range
Lowest barometer .....29.135 at 4 p.m. on 20th } 1.092.

Self-registering Ther.
- Maximum temperature .....60°8 on 14th } Monthly range
- Minimum temperature ..... 9°5 on 4th } 51°3.
- Mean maximum temperature .....41°55 } Mean daily range
- Mean minimum temperature.....25°34 } 16°21.
- Greatest daily range.....25°3 from a.m. to p.m. of 14th.
- Least daily range ..... 7°0 from a.m. to p.m. of 17th.

Warmest day .....14th; mean temperature.....46°55 } Difference=28°82.
Coldest day..... 4th; mean temperature.....17°73

Maximum Radiation
- Solar.....119°0 on 15th } Monthly range
- Terrestrial ..... 0°8 on 5th } 118°2.

Aurora observed on 3 nights, viz., 1st, 7th and 12th; possible to see Aurora on 14 nights, impossible on 16 nights.

Snowing on 7 days; depth, 11.0 inches; duration of fall, 32.9 hours.

Raining on 4 days; depth, 1.240 inches; duration of fall, 25.7 hours.

Mean of cloudiness, 0.63.

WIND.

Resultant direction, N. 39° W.; resultant velocity, 4.09 miles.

Mean velocity, 9.64 miles per hour.

Maximum velocity, 37.0 miles per hour, from 2 to 3 p.m. of 11th.

Most windy day, 26th; mean velocity, 18.76 miles per hour.

Least windy day, 7th; mean velocity, 1.97 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 14.76 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 6.56 miles per hour.

Lightning on 14th and 20th.

Thunder on 20th.

Solar haloes on 5th, 7th, 10th, 19th, 27th and 28th.

Lunar haloes on 27th and 28th.

20th. First trip of steamer "City of Toronto" to Niagara.

COMPARATIVE TABLE FOR APRIL.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity.
	°	°	°	°	°					°		
1846	44.0	+ 3.0	81.8	24.2	57.6	10	1.300	2	1.3	...	...	0.55 lbs
1847	39.2	— 1.8	65.1	9.3	55.8	8	2.870	2	4.0	...	...	0.59
1848	41.3	+ 0.3	65.1	22.7	42.4	5	1.455	1	0.5	N 77 W	1.46	4.89mls
1849	39.0	— 2.0	72.0	15.5	56.5	10	2.655	2	1.7	N 43 W	3.14	7.50
1850	37.9	— 3.1	65.7	18.0	47.7	7	4.720	2	1.1	N 50 E	1.12	7.64
1851	41.3	+ 0.3	59.3	25.8	33.5	11	2.295	3	1.2	N 14 E	2.52	8.07
1852	38.2	— 2.8	53.8	20.0	33.8	6	1.990	4	9.4	N 23 E	2.44	6.68
1853	41.9	+ 0.9	65.7	25.0	40.7	10	2.625	1	1.0	N 12 W	1.95	5.20
1854	41.0	0.0	64.5	20.2	44.3	12	2.685	4	2.7	N 50 E	2.57	6.81
1855	42.4	+ 1.4	69.4	10.7	58.7	8	2.030	3	1.6	N 36 W	3.99	7.57
1856	42.3	+ 1.3	72.2	14.2	58.0	13	2.780	3	0.1	N 29 E	1.64	6.05
1857	35.4	— 5.6	52.0	5.9	46.1	10	1.755	11	12.9	N 60 W	4.15	10.24
1858	41.5	+ 0.5	65.2	21.8	43.4	13	1.642	2	0.1	N 14 W	1.64	9.57
1859	39.5	— 1.5	64.8	22.6	42.2	9	2.527	8	1.2	N 36 W	2.33	10.79
1860	39.5	— 1.5	61.8	19.5	42.3	11	1.282	5	0.3	N 37 W	4.10	10.39
1861	42.0	+ 1.0	67.0	23.8	43.2	12	1.619	4	6.9	N 37 E	2.31	8.90
1862	39.6	— 1.4	68.0	14.5	53.5	10	2.235	4	0.2	N 50 E	2.48	9.77
1863	42.0	+ 1.0	69.0	8.6	60.4	8	2.210	4	1.6	N 14 E	3.75	9.20
1864	40.9	— 0.1	59.4	28.1	31.3	16	3.633	3	3.5	N 41 E	3.39	7.77
1865	43.1	+ 2.1	62.5	23.0	39.5	17	3.972	6	2.0	N 84 W	2.11	8.39
1866	43.9	+ 2.9	71.0	28.5	42.5	7	1.675	2	Inap.	N 42 W	3.34	7.95
1867	39.5	— 1.5	65.5	25.4	40.1	12	2.147	5	7.2	N 51 W	2.68	7.89
1868	38.0	— 3.0	64.0	9.2	54.8	7	0.990	10	5.3	N 63 W	2.43	9.24
1869	40.1	— 0.9	72.2	16.6	55.6	9	2.965	6	0.5	N 59 W	4.03	8.91
1870	44.6	+ 3.6	67.0	29.6	37.4	9	2.145	2	0.1	N 40 E	3.55	7.03
1871	43.0	+ 2.0	72.8	26.4	46.4	17	3.318	2	1.3	N 48 W	1.86	8.85
1872	40.5	— 0.5	70.0	22.7	47.3	9	0.910	5	0.7	N 68 W	3.84	9.12
1873	38.6	— 2.4	61.2	24.4	36.8	13	3.975	3	Inap.	N 18 E	2.89	9.05
1874	34.2	— 6.8	60.8	9.5	51.3	4	1.240	7	11.0	N 39 W	4.09	9.64
Results to 1873.	41.04	...	66.00	19.86	46.14	10.06	2.492	3.65	2.26	N 19 W	2.07	8.21
Excess for '74.	— 6.81	...	+ 5.20	+ 10.36	+ 5.16	— 6.06	— 1.252	+ 3.35	+ 8.74	...	...	+ 1.43

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—MAY, 1874.

Latitude—43° 39′ 4″ *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	ME'N.	Excess of Mean above Normal	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN.	Rain in inches.	Snow in inches.
1	29.312	29.174	29.263	29.2550	35.5°	52.8°	41.6°	43.63°	— 3.22°	.144	.073	.131	.125	70	17	49	46	W	W	N W	N 68° W	12.6	31.5	5.5	15.40	15.92	...	...
2	.324	.466	.656	.4995	37.3	43.4	38.0	39.8[illegible]	— 7.38	.153	.178	.144	.157	69	63	63	64	N	S	N	N 8 W	7.2	7.0	10.0	3.32	5.50	...	...
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S W	Calm.	N 37 F	7.0	2.6	0.0	1.46	5.17	..	...
4	.738	.657	.573	.6447	41.2	48.8	44.9	45.82	— 2.08	.161	.172	.186	.174	61	48	62	56	Calm.	E	N	N 54 E	0.0	11.0	5.2	6.19	7.05	...	...
5	.566	.478	.434	.4868	45.9	52.1	44.1	47.67	— 0.60	.129	.155	.140	.145	41	38	48	43	N E	S	N	N 19 E	11.8	4.5	8.0	3.72	7.83	...	...
6	.455	.535	.660	.5628	41.6	45.2	32.9	39.73	— 8.92	.147	.102	.132	.130	56	32	70	54	N	N	N	N 18 W	7.2	19.0	12.0	10.92	11.27	...	...
7	.744	.702	.636	.6878	32.9	50.3	44.1	43.28	— 5.70	.110	.142	.140	.129	57	39	48	46	N W	S	S W	S 44 W	17.0	13.0	3.2	5.73	7.94	...	...
8	.570	.595	.545	.5683	39.4	57.8	46.3	48.45	— 0.88	.168	.212	.223	.204	70	44	70	61	S W	S	S E	S 33 W	2.6	5.4	0.5	1.19	2.98	...	...
9	.460	.352	.445	.4260	45.2	82.7	63.6	64.07	+14.38	.228	.310	.360	.307	75	28	61	54	S W	W	S W	S 65 W	7.4	30.5	15.8	11.96	12.85	...	...
10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	S W	W	S 52 W	2.5	7.4	3.4	5.59	7.42	...	...
11	.872	.907	.853	.8752	44.8	53.1	52.1	50.60	+ 0.20	.196	.212	.206	.209	66	52	53	57	E	E	E	N 84 E	4.0	13.9	12.8	11.18	11.25	...	...
12	.852	.754	.681	.7558	48.5	63.2	56.4	57.47	+ 6.75	.273	.330	.295	.314	80	57	64	67	N E	E	N W	N 76 E	1.0	12.5	7.5	5.18	6.35	Inap.	...
13	.690	.614	.685	.6618	56.0	72.6	55.7	62.03	+10.93	.376	.457	.260	.363	84	57	58	64	S	S	N W	N 74 W	0.2	7.6	5.2	2.20	6.37	...	...
14	.766	.805	.753	.7738	47.4	58.2	48.4	51.88	+ 0.45	.199	.282	.224	.232	60	57	65	60	N	S E	N E	S 87 E	9.5	10.0	4.0	3.54	6.85	...	...
15	.704	.566	.429	.5452	49.9	59.3	51.7	54.12	+ 2.33	.216	.267	.312	.270	60	53	81	65	E	E	N	N 76 E	14.6	6.2	3.0	7.08	7.48	...	...
16	.266	.192	.407	.3077	52.8	57.8	47.0	52.00	— 0.13	.364	.331	.234	.306	90	68	73	78	E	W	W	S 76 W	7.8	31.4	17.5	8.52	13.58	.135	...
17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	S	N W	S 80 W	0.6	12.5	13.0	2.80	6.21	.210	...
18	.487	.578	.603	.5585	45.2	49.9	39.8	44.60	— 8.22	.246	.326	.196	.254	82	90	80	85	N	S	Calm.	N 11 W	18.8	4.0	0.0	5.32	8.96	.302	...
19	.616	.541	.494	.5423	45.2	62.2	48.4	52.58	— 0.58	.172	.154	.256	.214	56	27	75	56	N W	W	S W	N 84 W	12.2	14.3	3.0	5.11	8.23	...	...
20	.483	.438	.470	.4612	47.0	53.1	49.2	49.17	— 4.37	.292	.263	.294	.279	91	64	81	80	N W	E	N W	N 73 E	0.6	8.2	6.8	0.63	3.62	.010	...
21	.505	.527	.595	.5455	47.0	60.0	49.5	52.30	— 1.57	.273	.203	.190	.225	85	39	54	60	N W	N W	N W	N 34 W	8.8	25.8	12.7	15.86	16.24	...	...
22	.655	.650	.684	.6675	47.0	62.2	45.9	52.97	— 1.23	.208	.113	.191	.181	67	19	61	48	N W	N W	N	N 31 W	12.0	25.0	3.2	13.56	13.68	...	...
23	.701	.611	.579	.6268	47.7	60.0	53.1	54.47	— 0.08	.204	.269	.263	.239	61	52	64	56	N W	S W	S E	S 32 W	0.2	10.0	0.7	3.21	3.90	Inap.	...
24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	N E	N 85 E	4.8	9.4	7.5	7.17	7.39	...	...
25	.010	.035	.190	.0849	55.7	61.4	53.5	57.03	— 1.80	.442	.389	.258	.359	99	71	62	75	E	W	W	S 89 W	6.4	33.0	25.0	15.58	20.21	.760	...
26	.331	.482	.611	.4902	48.5	55.0	48.8	50.88	— 4.68	.244	.279	.278	.267	71	64	81	71	N W	N W	N W	N 52 W	19.0	23.6	1.4	15.12	15.56	...	...
27	.699	.673	.647	.6748	47.0	65.0	52.4	55.90	0.00	.283	.389	.315	.336	88	63	80	76	Calm.	S E	S E	S 31 E	0.0	9.8	1.8	2.91	3.41	...	...
28	.669	.611	.642	.6432	53.1	76.2	61.4	63.95	+ 7.73	.345	.510	.462	.435	86	56	84	73	Calm.	S E	N	S 69 E	0.0	7.0	2.4	1.43	3.00	...	...
29	.745	.794	.766	.7673	63.6	65.8	60.0	62.65	+ 6.10	.446	.391	.444	.416	76	61	86	73	N E	S E	Calm.	N 54 E	3.2	6.0	0.0	2.72	5.50	...	...
30	.764	.669	.536	.6445	59.6	76.2	61.8	66.78	+ 9.92	.437	.611	.457	.511	86	68	83	78	N	S	S	S 4 W	1.0	4.6	1.0	1.63	2.29	...	...
31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	W	N W	N 58 W	1.8	11.0	13.8	6.34	7.79	.075	...
	29.5763	29.5540	29.5707	29.5676	47.12	59.40	49.64	52.46	+ 0.37	.248	.274	.254	.261	73	51	68	63	.....	.....	.....	.....	6.51	13.47	6.65	.....	8.45	1.492	.....

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1874.

TE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....29.907 at 2 p.m. on 11th. } Monthly range
Lowest Barometer.....28.956 at 8 a.m. on 25th. } 0.951.

Self-registering Ther.
- Maximum temperature.....86.0 on 9th. } Monthly range
- Minimum temperature.....25.3 on 7th. } 60°7
- Mean maximum temperature.....63°28 } Mean daily range
- Mean minimum temperature.....41°68 } 21°60
- Greatest daily range.....46°5 from a.m. to p.m. of 9th.
- Least daily range.....10°2 from a m. to p.m. of 20th.

Warmest day.....30th; mean temperature 66°78 } Difference=27°05
Coldest day..... 6th; mean temperature 39°73 }

Maximum Radiation
- Solar.....134°4 on 9th. } Monthly range
- Terrestrial..... 14°8 on 7th. } 119°6

Aurora observed on 3 nights, viz: 4th, 26th and 27th.

Possible to see aurora on 19 nights; impossible on 12 nights.

Raining on 8 days; depth, 1.490 inches; duration of fall, 28.1 hours.

Mean of cloudiness, 0.50.

WIND.

Resultant direction, N. 49° W.; Resultant velocity, 2.64 miles.

Mean velocity, 8.45 miles per hour.

Maximum velocity, 37.0 miles, from 3 to 4 p.m. of 25th.

Most windy day, 25th; mean velocity, 20.21 miles per hour.

Least windy day, 30th; mean velocity, 2.29 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 13.47 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 4.76 miles per hour.

Thunder on 12th, 25th and 28th.

Lightning on 12th and 25th.

Solar halo 7th; lunar haloes 22nd and 28th.

Ice on 7th and 19th.

Frogs first heard on 4th.

COMPARATIVE TABLE FOR MAY.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1846	55.5	+ 3.8	79.7	33.1	46.6	9	4.375	0	0.0	...	...	0.46 lbs.
1847	54.4	+ 2.7	72.1	26.7	45.4	12	2.040	0	0.0	...	...	0.29
1848	54.1	+ 2.4	78.0	31.3	46.7	13	2.520	0	0.0	N 40 W	1.31	4.95mls.
1849	48.0	— 3.7	72.2	27.9	44.3	16	5.115	0	0.0	N 51 E	1.97	5.33
1850	47.6	— 4.1	77.8	27.5	50.3	7	0.545	1	Inap.	N 64 W	2.05	6.32
1851	51.3	— 0.4	73.3	28.0	45.3	12	2.950	1	0.5	N 32 W	1.59	6.34
1852	51.4	— 0.3	73.3	32.0	41.3	7	1.125	1	Inap	S 82 W	0.99	4.00
1853	50.9	— 0.8	78.4	32.2	46.2	17	4.420	1	Inap	N 2 W	0.83	5.16
1854	52.2	+ 0.5	71.4	25.2	46.2	11	4.630	0	0.0	East.	0.40	5.38
1855	53.1	+ 1.4	77.5	33.0	44.5	6	2.565	2	0.9	N 1 W	2.76	5.93
1856	50.5	— 1.2	82.2	31.2	51.0	14	4.580	1	Inap	N 4 E	3.99	9.81
1857	48.9	— 2.8	74.8	26.0	48.8	15	4.145	1	Inap.	N 23 W	1.14	8.13
1858	48.9	— 2.8	69.8	31.0	38.8	17	6.367	0	0.0	N 42 E	3.33	9.30
1859	55.2	+ 3.5	79.6	39.5	40.1	11	3.410	0	0.0	N 72 E	1.59	5.70
1860	55.5	+ 3.8	74.5	32.5	42.0	16	1.815	0	0.0	N 26 E	2.66	7.17
1861	47.5	— 4.2	73.0	28.0	45.0	12	3.380	1	0.5	N 47 W	3.60	9.17
1862	52.2	— 0.5	78.5	32.4	46.1	8	1.427	0	0.0	N 52 W	2.80	7.87
1863	54.3	+ 2.6	79.0	36.4	42.6	14	3.363	1	0.1	N 56 E	0.41	5.89
1864	54.8	+ 3.1	79.0	32.2	46.8	18	4.070	0	0.0	N 7 W	1.86	5.64
1865	52.3	+ 0.6	79.0	30.0	49.0	11	4.005	0	0.0	N 3 W	1.65	5.48
1866	48.3	— 3.4	73.4	33.4	40.0	13	2.820	0	0.0	N 46 W	4.49	9.26
1867	46.5	— 5.2	65.0	24.6	40.4	18	3.220	1	Inap.	N 51 W	3.55	8.40
1868	51.8	+ 0.1	73.0	33.2	39.8	16	7.670	0	0.0	N 38 E	3.16	6.87
1869	50.8	— 0.9	74.2	31.4	42.8	16	2.805	1	Inap	N 29 W	2.38	6.55
1870	56.3	+ 4.6	81.2	38.8	42.4	10	1.150	0	0.0	N 23 E	1.09	5.48
1871	54.2	+ 2.5	85.0	32.4	52.6	7	2.302	0	0.0	N 23 W	2.53	7.70
1872	51.9	+ 0.2	78.8	32.0	46.8	14	1.934	0	0.0	N 52 W	2.25	6.49
1873	51.9	+ 0.2	76.4	30.0	46.4	13	2.205	0	0.0	N 26 E	2.69	8.88
1874	52.5	+ 0.8	86.0	25.3	60.7	8	1.492	0	0.0	N 49 W	2.64	8.45
Results to 1873.	51.66	.....	76.07	31.14	44.93	11.91	3.184	0.35	0.06	N 12 W	1.64	6.81
Excess for '74.	+ 0.80	.....	+ 9.93	— 5.84	+ 15.77	— 3.91	— 1.692	— 0.35	— 0.06	...	...	+ 1.64

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—JUNE, 1874.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Result't.	Velocity of the Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.402	29.510	29.603	29.5210	55.7°	60.7°	53.5°	56.63°	− 0.87°	.270	.228	.168	.226	61	42	41	49	N W	N	N	N 18° W	17.2	12.6	12.1	14.03	14.21	...	...
2	.709	.719	.684	.7085	50.3	62.2	52.8	56.05	− 1.75	.230	.285	.197	.244	63	51	49	54	Calm.	S	N E	N 70 E	0.0	7.2	3.6	1.97	4.40	...	...
3	.641	.574	.510	.5660	52.4	61.1	57.1	57.05	− 1.08	.262	.370	.397	.349	66	68	85	74	E	E	S	N 85 E	3.6	8.5	2.5	4.19	4.92	Inap	...
4	.494	.513	.477	.4940	57.8	72.3	59.3	63.07	+ 4.60	.449	.544	.441	.472	94	69	87	82	Calm.	S	Calm.	S 7 W	0.0	7.0	0.0	1.72	1.87	...	...
5	.487	.505	.561	.5187	59.3	75.1	67.9	67 68	+ 8.92	.416	.612	.280	.432	82	70	41	63	E	S W	N	N 18 E	0.8	2.0	7.5	1.00	2.42	...	...
6	.572	.568	.514	.5422	60.7	69.0	60.7	64.73	+ 5.65	.447	.588	.497	.511	84	83	93	84	N E	E	E	N 73 E	1.0	8.2	2.7	3.97	4.87	.050	...
7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	E	E	N W	N 10 E	5.8	4.0	17.2	1.53	4.38	.720	...
8	.444	.426	.429	.4367	60.0	66.5	56.7	60.53	+ 0.80	.407	.486	.401	.417	79	74	87	79	N W	W	Calm.	S 79 W	11.0	3.7	0.0	3.37	4.83	...	...
9	.412	.394	.576	.4605	59.6	79.1	65.4	67.98	+ 7.95	.461	.573	.434	.459	90	58	69	69	S E	N W	N	N 39 W	2.2	18.6	7.4	3.89	6.92	.050	...
10	.701	.745	.725	.7228	61.4	66.5	56.4	62.22	+ 1.85	.401	.394	.305	.363	73	60	67	64	N	S E	E	N 61 E	9.4	5.7	8.4	3.55	6.02	Inap.	...
11	.671	.523	.417	.5240	53.5	49.9	48.8	50.85	− 9.85	.288	.295	.300	.302	70	82	86	81	E	N E	E	N 73 E	14.0	15.0	3.0	11.28	11.33	.090	...
12	.386	.379	.530	.4408	51.3	60.7	50.0	54.22	− 6.78	.352	.303	.253	.306	93	57	70	73	W	W	S W	S 73 W	4.6	16.6	14.6	9.09	9.96	.055	...
13	.659	.774	.839	.7713	49.9	65.8	51.7	56.35	− 4.98	.264	.203	.292	.248	74	32	76	58	N W	N W	Calm.	N 69 W	12.0	13.8	0.0	11.39	11.68	...	...
14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	S W	Calm.	S 37 W	0.0	4.8	0.0	1.33	1.56	...	...
15	.887	.833	.659	.7787	58.2	66.1	58.6	61.38	− 0.60	.359	.437	.355	.401	74	68	71	73	Calm.	Calm.	E	N 79 E	0.0	0.0	8.8	2.29	2.95	.020	...
16	.516	.433	.381	.4327	58.3	61.1	58.6	59.50	− 2.80	.454	.531	.462	.482	93	99	94	95	N E	S	S W	S 18 W	1.0	5.8	8.0	2.69	4.11	.540	...
17	.368	.413	.554	.4555	58.5	70.8	59.6	63.52	+ 0.92	.464	.428	.412	.430	94	57	81	75	S W	N W	Calm.	N 69 W	3.8	29.4	0.0	11.47	12.15	.050	...
18	.645	.683	.723	.6905	59.3	74.1	62.9	66.00	+ 3.08	.394	.197	.297	.290	78	23	52	48	N W	N W	N	N 29 W	10.2	25.0	9.7	11.75	12.19	...	...
19	.793	.733	.737	.7558	61.1	72.6	58.2	64.52	+ 1.30	.370	.498	.348	.408	68	62	72	67	N	S	N E	N 5 W	6.8	4.4	3.6	2.04	5.48	...	...
20	.832	.837	.815	.8317	59.3	62.2	56.0	59.03	− 4.48	.368	.366	.355	.366	73	66	79	73	E	E	E	N 89 E	6.4	10.6	3.5	7.07	7.54	...	...
21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	E	S E	Calm.	S 55 E	1.6	2.8	0.0	1.97	2.32	...	...
22	.733	.653	.586	.6507	60.7	80.6	75.9	73.53	+ 9.43	.447	.644	.631	.572	84	61	70	70	S	S	W	S 54 W	0.6	10.0	6.4	4.50	5.13	...	...
23	.575	.513	.550	.5460	74.1	86.3	74.4	78.03	+13.65	.640	.636	.636	.627	76	51	75	66	W	N W	N	N 66 W	13.8	24.4	8.0	9.73	10.87	...	...
24	.746	.754	.699	.7367	60.4	65.8	58.9	62.23	− 2.38	.297	.307	.273	.266	56	48	55	48	N E	S	S W	N 35 E	11.8	8.4	3.3	1.78	7.17	...	...
25	.663	.493	.412	.5133	61.1	64.7	57.5	61.38	− 3.52	.320	.323	.404	.382	59	52	84	70	S W	E	Calm.	S 84 E	0.4	5.0	0.0	2.84	3.91	.130	...
26	.246	.361	.451	.3658	56.7	60.7	59.6	58.95	− 6.18	.401	.485	.486	.460	87	91	95	92	N E	E	Calm.	N 64 E	2.6	7.0	0.0	2.88	3.02	.090	...
27	.523	.512	.413	.4835	60.7	73.7	61.4	66.12	+ 0.73	.435	.483	.462	.444	82	58	85	70	N	S E	S E	S 69 E	8.4	6.0	0.4	0.76	4.49	...	...
28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	S	S W	S 26 W	2.0	16.2	2.5	5.94	6.12	Inap.	...
29	.202	.275	.448	.3173	75.5	81.6	63.2	72.37	+ 6.50	.651	.433	.401	.470	74	41	69	61	W	W	N W	N 82 W	16.1	22.4	4.8	9.79	10.96	...	...
30	.587	.653	.657	.6402	53.9	68.3	60.0	60.78	− 5.33	.293	.407	.281	.329	70	59	53	60	W	W	N	S 84 W	4.4	13.8	2.0	4.79	7.82	...	...
	29.5728	29.5681	29.5750	29.5733	58.83	68.37	59.43	62.49	+ 0.48	.390	.425	.376	.395	77	61	73	69	.....	.....	.....	...	5.72	10.63	4.67	...	6.52	1.795	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JUNE, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....29.905 at 7 a.m. on 14th } Monthly range=
Lowest Barometer.....29.176 at 11 p.m. on 28th } 0.729.

Self-registering Ther.
- Maximum temperature.....88°0 on 22nd } Monthly range=
- Minimum temperature.....44°2 on 2nd } 43°8
- Mean maximum temperature.....72°34 } Mean daily range=
- Mean minimum temperature.....53°02 } 19°32.
- Greatest daily range.....35°0 from a.m. to p.m. of 22nd.
- Least daily range.....7°2 from a.m., to p.m. of 16th.

Warmest day.....23rd; mean temperature.....78°03 } Difference=27°18.
Coldest day.....11th; mean temperature.....50°85 }

Maximum Radiation
- Solar.....140°2 on 23rd } Monthy range=
- Terrestrial.....30°2 on 13th & 14th } 110°0.

Aurora observed on 3 nights, viz., 7th, 8th and 10th.

Possible to see Aurora on 21 nights; impossible on 9 nights.

Raining on 13 days; depth, 1.795 inches; duration of fall, 28.5 hours.

Mean of cloudiness, 0.54.

WIND.

Resultant direction, N 44° W; resultant velocity, 1.68 miles.

Mean velocity, 6.52 miles per hour.

Maximum velocity, 29.4 miles, from 2 to 3 p.m. of 16th.

Most windy day, 1st; mean velocity, 14.21 miles per hour.

Least windy day, 14th; mean velocity, 1.56 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 10.63 miles per hour.

Least windy hour, 8 p.m.; mean velocity, 4.13 miles per hour.

Rainbows on 12th and 20th.

Solar halo on 15th. Lunar halo on 23rd.

Lightning on 4th, 6th and 8th.

Thunder on 7th and 15th.

Fog on 7th, 11th, 12th and 26th.

Dew on 7 mornings.

COMPARATIVE TABLE FOR JUNE.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of Days.	Inches.	SNOW. No. of Days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1846	63.3	+ 1.6	84.2	39.1	45.1	10	1.920	...	...	...	...	0.32 lbs.
1847	58.4	— 3.3	77.8	36.7	41.1	14	2.625	...	...	...	...	0.30
1848	62.9	+ 1.2	92.0	37.4	54.6	8	1.810	...	...	N 61 W	1.90	4.51 mls.
1849	63.2	+ 1.5	84.4	35.2	49.2	7	2.020	...	...	S 71 E	0.49	3.32
1850	64.3	+ 2.6	85.6	34.2	51.4	10	3.345	...	...	S 60 W	0.38	4.54
1851	59.2	— 2.5	79.2	37.0	42.2	11	2.605	...	...	S 2 W	1.26	4.42
1852	60.8	— 0.9	86.1	37.2	48.9	10	3.160	...	...	S 76 W	1.49	4.09
1853	65.5	+ 3.8	89.5	39.2	50.3	9	1.550	...	...	N 1 W	0.10	3.73
1854	64.1	+ 2.4	92.5	35.2	57.3	9	1.460	...	...	N 24 E	0.71	4.15
1855	59.9	— 1.8	91.5	36.2	55.3	17	4.070	...	...	N 69 W	1.33	5.70
1856	62.1	+ 0.4	89.2	42.0	47.2	13	3.200	...	...	S 21 W	0.90	5.30
1857	56.9	— 4.8	76.0	35.0	41.0	21	5.060	...	...	N 49 W	1.15	7.60
1858	66.2	+ 4.5	90.2	42.5	47.7	12	2.943	...	...	S 20 E	0.25	5.53
1859	58.3	— 3.4	86.4	32.2	54.2	16	4.085	2	Inap.	N 77 E	1.95	7.19
1860	63.2	+ 1.5	81.6	49.2	32.4	14	2.136	...	...	N 44 W	3.13	7.61
1861	61.3	— 0.4	87.8	41.6	46.2	13	2.329	...	...	N 39 W	2.29	6.11
1862	60.5	— 1.2	85.4	39.4	46.0	10	1.007	...	...	N 26 W	1.77	5.98
1863	60.1	— 1.6	84.8	37.4	47.4	13	1.662	...	...	N 50 W	2.26	5.24
1864	63.0	+ 1.3	93.4	34.8	58.6	5	0.570	...	...	N 55 W	1.72	4.53
1865	64.5	+ 2.8	90.2	43.0	47.2	7	2.005	...	...	S 30 W	0.60	4.06
1866	60.2	— 1.5	90.5	40.0	50.5	15	2.720	...	...	S 15 W	0.71	5.09
1867	64.3	+ 2.6	88.6	44.0	44.6	8	0.885	...	...	S 84 E	0.48	4.13
1868	62.0	+ 0.3	84.2	38.0	46.2	11	2.217	...	...	N 16 E	0.85	5.26
1869	58.4	— 3.3	81.4	36.4	45.0	22	4.373	...	...	N 80 W	1.77	5.23
1870	67.3	+ 5.6	88.4	50.0	38.4	16	3.090	...	...	N 17 E	0.40	5.14
1871	61.4	— 0.3	83.0	41.8	41.2	13	3.340	...	...	N 80 W	2.04	6.57
1872	63.7	+ 2.0	88.0	41.8	46.2	8	3.148	...	...	N 69 W	0.76	3.80
1873	63.7	+ 2.0	89.5	40.0	49.5	10	0.680	...	...	N 18 E	1.00	6.43
1874	62.5	+ 0.8	88.0	44.2	43.8	13	1.795	...	...	N 44 W	1.68	6.52
Res'lts to 1873.	61.74	...	86.47	39.16	47.31	11.74	2.915	...	...	N 61 W	0.80	5.20
Excess for 1874	+ 0.75	...	+ 1.53	+ 5.04	— 3.51	+ 1.26	— 1.120	...	...	...	...	+ 1.32

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JULY, 1874.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above aver'ge	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.715	29.635	29.552	29.6277	55.3°	73.7°	60.0°	63.83°	— 2.48°	.343	.286	.373	.338	78	34	72	59	Calm.	S E	E	s 70° E	0.0	4.4	4.8	2.49	3.91	0.090	...
2	.534	.584	.635	.5915	61.4	70.1	56.4	63.73	— 2.77	.389	.464	.372	.411	72	63	81	70	N	N W	N	N 26 W	2.4	17.2	2.6	8.76	9.30	...	...
3	.691	.637	.615	.6353	57.8	78.8	60.0	65.88	— 0.82	.342	.309	.468	.388	72	31	90	65	N W	W	S W	S 74 W	4.0	14.5	4.8	4.71	7.89	.360	...
4	.416	.365	.500	.4232	59.3	67.9	62.5	62.33	— 4.55	.465	.548	.435	.472	92	80	76	84	E	E	N	N 48 E	5.8	7.0	9.9	6.06	7.87	.320	...
5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S	S W	N 14 W	13.0	7.2	2.8	4.14	6.68	...	...
6	.684	.613	.583	.6232	64.0	79.1	68.7	70.95	+ 3.70	.519	.528	.523	.507	87	53	74	67	S W	S	S W	S 24 W	2.2	14.0	2.0	5.12	5.21	...	...
7	.598	.466	.400	.4757	69.0	79.1	68.7	73.67	+ 6.30	.575	.702	.683	.661	80	70	97	80	N	N	W	S 63 W	0.4	9.0	0.8	0.73	2.69	1.370	...
8	.440	.441	.455	.4445	71.5	82.4	70.1	74.67	+ 7.13	.616	.574	.477	.559	80	52	65	66	N	S	S W	S 73 W	6.5	8.2	3.2	2.03	4.01	...	...
9	.509	.540	.490	.5142	70.1	74.4	67.9	71.05	+ 3.38	.504	.516	.441	.466	68	60	64	61	N E	E	N E	N 59 E	7.4	8.0	3.4	6.48	7.76	...	...
10	.465	.467	.491	.4748	64.7	72.6	67.2	68.23	+ 0.45	.510	.587	.627	.581	84	73	94	84	N E	S	N W	S 57 E	2.4	5.4	2.2	0.92	2.86	.080	...
11	.565	.641	.709	.6435	62.5	74.8	64.7	67.15	— 0.75	.448	.498	.510	.463	79	58	83	71	N W	N	N E	N 5 E	2.2	9.6	3.2	5.2	5.87	...	...
12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	N E	N	N 46 E	11.2	4.0	8.5	7.08	7.42	.460	...
13	.580	.693	.717	.6683	57.5	71.2	63.6	64.88	— 3.20	.453	.504	.512	.485	95	66	87	80	N W	S W	S W	S 61 W	9.0	10.5	4.1	3.86	6.87	.120	...
14	.779	.754	.646	.7212	63.2	82.0	70.8	72.02	+ 3.83	.475	.678	.612	.576	82	62	81	74	S W	S	S W	S 30 W	1.0	10.6	2.9	4.16	4.27	...	...
15	.563	.451	.399	.4668	73.2	82.4	71.2	74.63	+ 6.38	.635	.705	.695	.649	80	63	91	76	S W	S W	N W	S 51 W	8.0	16.2	12.0	8.94	10.03	.220	...
16	.547	.594	.659	.6098	60.4	67.6	57.5	61.20	— 7.08	.365	.417	.313	.364	70	62	66	67	W	N W	N	N 42 W	10.6	13.8	2.4	8.82	9.26	...	...
17	.709	.792	.673	.7055	52.4	71.2	64.0	62.82	— 5.53	.327	.394	.465	.401	83	51	78	71	Calm.	S	S	S 19 W	0.0	7.0	1.0	1.81	3.12	...	...
18	.712	.707	.721	.7183	64.0	80.6	64.7	70.37	+ 1.98	.465	.568	.536	.520	78	54	87	71	S	S	S E	S 16 W	1.4	7.7	1.0	3.92	4.13	...	...
19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S E	S W	S W	S 27 W	0.2	15.5	6.0	7.02	7.23	...	...
20	.640	.683	.696	.6712	66.5	71.5	59.3	65.52	— 2.93	.473	.500	.321	.424	73	65	64	66	N	N W	N	N 77 W	13.0	7.2	9.2	2.69	7.33	...	...
21	.727	.712	.713	.7173	52.8	69.2	62.2	63.08	— 5.38	.321	.395	.366	.371	80	56	66	65	N W	S W	N	N 22 W	7.5	9.6	2.0	3.56	6.67	...	...
22	.756	.720	.661	.7068	56.7	74.1	61.4	65.28	— 3.18	.379	.423	.462	.418	82	50	85	69	N	S	Calm.	S 16 W	2.6	8.4	0.0	1.74	3.17	...	...
23	.671	.589	.552	.5988	59.6	74.1	65.8	68.53	+ 0.08	.401	.464	.495	.460	79	55	78	67	W	S E	E	S 48 E	0.6	6.8	3.4	2.05	3.23	...	...
24	.563	.548	.511	.5377	61.4	76.2	67.9	69.78	+ 1.33	.474	.567	.548	.551	87	62	80	76	N E	E	E	East.	2.8	10.8	2.3	4.21	4.81	...	...
25	.539	.531	.516	.5228	71.5	81.6	72.3	75.75	+ 7.33	.660	.716	.680	.684	85	66	85	77	S E	S	S	S 21 E	4.6	10.8	2.6	4.11	5.60	...	...
26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	S W	N W	S 26 W	7.2	10.2	16.4	6.60	8.17	Inap.	...
27	.503	.591	.607	.5708	64.0	67.2	66.5	66.32	— 2.05	.489	.476	.486	.476	82	71	74	74	N	N	N	N 3 W	10.2	11.2	5.2	8.99	9.31	...	...
28	.591	.583	.580	.5838	62.2	62.5	60.0	61.50	— 6.80	.366	.448	.432	.424	66	79	84	78	N	N E	N W	N 36 E	7.6	8.2	10.6	5.12	6.38	.100	...
29	.586	.607	.657	.6218	60.0	74.8	63.6	66.90	— 1.33	.407	.296	.322	.366	79	34	55	58	N	N	N	N 15 W	10.0	15.6	9.0	9.47	9.74	...	...
30	.673	.648	.549	.6115	60.7	76.6	67.9	69.67	+ 1.47	.349	.390	.441	.404	65	42	64	56	N W	S	S	S 28 W	3.0	14.1	6.1	5.36	8.26	...	...
31	.344	.381	.296	.3313	68.6	78.8	67.9	72.38	+ 4.27	.538	.402	.533	.490	77	40	78	64	S W	W	S W	S 82 W	7.5	22.0	6.8	12.12	14.08	.230	...
	29.5963	29.5916	29.5771	29.5858	62.57	74.61	64.92	67.86	— 0.05	.455	.495	.486	.478	79	57	78	70	.....	.....	.....	.....	5.30	10.47	4.88	...	6.55	3.350	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer ..... 29.797 at 8 a.m. on 14th. } Monthly range
Lowest Barometer ..... 29.244 at mid. on 31st. } 0.553.

Self-registering Ther.
- Maximum temperature ..... 83°5 on 7th. } Monthly range
- Minimum temperature ..... 44°4 on 1st. } 39°1.
- Mean maximum temperature ..... 77°06. } Mean daily range
- Mean minimum temperature ..... 56°93. } 20°13.
- Greatest daily range ..... 31°8 from a.m. to p.m. of 1st.
- Least daily range ..... 8°5 from a.m. to p.m. of 28th.

Warmest day ..... 25th; mean temperature ..... 75°75 } Difference=14°55.
Coldest day ..... 16th; mean temperature ..... 61°20 }

Maximum Solar Radiation
- Solar ..... 141°4 on 3rd. } Monthly range
- Terrestrial ..... 28°6 on 1st. } 112.8.

Aurora observed on 4 nights, viz., 10th, 11th, 13th and 14th.

Possible to see Aurora on 18 nights; impossible on 13 nights.

Raining on 11 days; depth 3.350 inches; duration of fall 46.5 hours.

Mean of cloudiness, 0.52.

WIND.

Resultant direction N. 58° W.; resultant velocity 1.26 miles.

Mean velocity 6.55 miles per hour.

Maximum velocity 27.4 miles, from 3 to 4 p.m. of 31st.

Most windy day 31st; mean velocity 14.08 miles per hour.

Least windy day 7th; mean velocity 2.69 miles per hour.

Most windy hour 2 p.m.; mean velocity 10.47 miles per hour.

Least windy hour 9 p.m.; mean velocity 3.97 miles per hour.

Rainbow on 26th.

Lightning alone on 19th, 26th, and 31st.

Thunder storms on 1st, 3rd, 4th, 7th, 10th, 15th and 30th.

Dew heavy on 10 mornings.

Very large meteor in north at 10.20 on the 18th.

COMPARATIVE TABLE FOR JULY.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1846	68.0	+ 0.6	94.6	44.5	50.1	9	2.895	...	...	...	...	0.29 lbs
1847	68.0	+ 0.6	87.0	43.2	43.8	18	3.355	...	...	...	...	0.19
1848	65.5	— 1.9	82.2	44.1	38.1	10	1.890	...	...	N 14 W	0.18	4.94 mls
1849	68.4	+ 1.0	88.6	45.2	43.4	4	3.415	...	...	S 5 W	0.75	3.52
1850	68.9	+ 1.5	86.2	51.6	34.6	12	5.270	...	...	N 81 E	0.59	4.56
1851	65.0	— 2.4	82.7	46.5	36.2	12	3.625	...	...	N 60 W	0.88	4.13
1852	66.8	— 0.6	90.1	48.5	41.6	8	4.025	...	...	N 43 W	0.93	3.33
1853	65.6	— 1.8	91.3	41.6	49.7	10	0.915	...	...	S 58 E	0.24	3.69
1854	72.5	+ 5.1	98.0	42.5	55.5	9	4.805	...	...	S 49 W	0.37	4.03
1855	67.9	+ 0.5	92.8	49.2	43.6	13	3.245	...	...	S 19 W	0.73	6.47
1856	69.9	+ 2.5	96.6	49.5	47.1	8	1.120	...	...	N 79 W	1.57	5.84
1857	67.8	+ 0.4	86.6	47.0	39.6	15	3.475	...	...	S 68 E	0.81	4.74
1858	67.9	+ 0.5	85.0	52.0	33.0	13	3.072	...	...	N 15 E	1.13	5.76
1859	66.9	— 0.5	88.0	44.7	43.3	12	2.611	...	...	N 56 W	1.48	5.81
1860	63.9	— 3.5	88.0	43.8	44.2	13	4.356	...	...	N 60 W	2.15	7.29
1861	65.4	— 2.0	84.5	47.0	37.5	16	2.635	...	...	N 74 W	1.43	4.66
1862	66.7	— 0.7	95.5	48.2	47.3	15	5.344	...	...	S 89 W	1.42	5.80
1863	67.6	+ 0.2	83.5	48.0	35.5	15	3.408	...	...	N 18 W	0.40	3.89
1864	69.7	+ 2.3	90.2	49.0	41.2	8	1.332	...	...	N 61 W	2.23	6.00
1865	65.0	— 2.4	83.0	45.8	37.2	11	2.470	...	...	N 86 W	2.28	5.34
1866	70.4	+ 3.0	94.0	47.8	46.2	16	5.390	...	...	S 79 W	0.94	4.17
1867	68.2	+ 0.8	94.0	48.2	45.8	12	1.965	...	...	N 48 W	1.40	5.45
1868	75.8	+ 8.4	93.4	59.0	34.4	5	0.510	...	...	S 87 E	0.72	4.66
1869	64.5	— 2.9	84.9	49.8	35.1	13	4.610	...	...	S 67 W	2.01	5.07
1870	68.8	+ 1.4	87.4	48.0	39.4	16	1.896	...	...	S 78 W	1.59	4.82
1871	66.0	— 1.4	88.4	47.8	40.6	11	1.255	...	...	N 88 W	1.55	5.67
1872	70.2	+ 2.8	96.0	52.2	43.8	13	2.297	...	...	N 67 W	1.19	3.56
1873	68.4	+ 1.0	87.5	47.5	40.0	11	1.913	...	...	S 75 W	1.71	6.11
1874	67.9	+ 0.5	83.5	44.4	39.1	11	3.350	...	...	N 58 W	1.26	6.55
Res'lts to 1873.	67.41	...	89.43	47.72	41.71	10.74	3.181	...	...	N 78 W	0.82	4.97
Excess for '74.	+ 0.50	...	— 5.93	— 3.32	— 2.61	+ 0.26	+ 0.169	...	...	...	...	+ 1.58

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THE CANADIAN JOURNAL.

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No. LXXXVII.—MARCH, 1875.

LEAVES THEY HAVE TOUCHED;

BEING A REVIEW OF SOME HISTORICAL AUTOGRAPHS.

BY HENRY SCADDING, D.D.

(*Continued from page 124.*)

II.—BRITISH AND EUROPEAN GENERALLY.

Historical autographs may in some sort be considered to answer, in these days, the purpose of the religious relics of early ages. In former times, we know, the shrines and sacristies of churches and monasteries were the museums of the period. Science had not yet come into being; and human curiosity was obliged to satisfy itself with the examination of fragmentary portions of the bodies of departed heroes and a variety of miscellaneous objects having relation to the same persons. Some envoys from Spain, we are told, visited Constantinople about fifty years before it fell into the hands of the Turks. There were three thousand churches and monasteries in the place, not reckoning those in ruins. All of them were more or less rich in human remains, exhibited to visitors. The Spaniards in intervals of business took a rapid survey of the principal of them. They beheld, perhaps with a full faith, fragments of the bodies of many of those whose histories or mythologies had become the chief furniture of the popular mind. They saw the right arm of St. John the Evangelist; the right arm of St. Stephen; the right arm of St. Mary Magdalene, of St. Anne. The hand of St. John, they noted, wanted the thumb. St. Stephen's arm wanted the hand. St. Anne's hand wanted a finger. (It had been broken off and carried away by one of the Greek emperors

to enrich his own private collection.) They saw portions of the skeletons of St. Andrew, St. Nicholas, St. Catharine, St. Louis of France, St. Li of Genoa, of the Innocents slain by the edict of Herod, and of three of the eleven hundred Virgins who were martyred in former days in the vicinity of Cologne. At one place, Don Clavijo and his companions were shown a stone of many colours, bearing upon it tears, dropped from the eyes of St. John and the three Maries, still as fresh as if newly fallen. In the possession of such treasures, Constantinople, as we know, was not peculiar. Throughout the length and breadth of Europe, in innumerable localities, deposits of human remains, and other objects similar to those displayed before the eyes of the Spanish envoys, were preserved. The practice was probably derived from Asia, and doubtless began early among the primitive races of man. It was an easy way of keeping up the memory of departed heroes and heroines. It afforded ocular proof of their former existence, and so supplemented tradition conveniently. Among simple populations going on generation after generation, without acquaintance with written records, without the power, taken in the mass, of deciphering written records, when there were any, such a practice would be greatly applauded. (As to the abuses which would be likely to attend the practice, we need not stop to remark upon them: they are obvious enough.) Now, what I say is this: that there is in historic autograph relics a degree of that virtue which was felt originally to reside in the corporal relics of eminent men and women. They satisfy, in some degree, a certain human craving. We have not indeed the same needs in regard to the past that our forefathers had. The moral proofs of the allegations of history are among us so accessible and so strong, that the supplementary evidence of tangible, visible relics is not essential. Nevertheless, such relics are always acceptable. When it is beyond the bounds of possibility to behold the doer himself of great actions, it is ever pleasant, nay, it is oftentimes strengthening and refreshing, to see a particle of his handiwork on paper or otherwise. It is well, therefore, to have among us, here and there, depositories of such things, however limited. Remains of this kind, fragmentary and mutilated as we shall often find them, may be compared to those imperfect limbs—arms without hands, hands without the full tale of fingers—of which we were told just now. The study of a part will help to an idea of the whole. The chance-words preserved in the written relics will set the dead before us in a

variety of aspects; and should the tone of those words be at any time one of sorrow or perplexity, we shall perhaps be reminded by them of that stone of many colours bearing upon it tears still as fresh as if newly fallen. Moreover, by the contemplation of such objects, a taste for the noble study of history may here and there be awakened and fostered; and by hints hence derived, where an enthusiasm in that direction has already been set up, an ambition may be roused to investigate the Past by the aid of original documents whenever the opportunity is afforded; and so not to continue forever at the mercy of interested garblers who from time to time propose to supply us and our children with their one-sided compendiums.

I enter now upon my proposed review without further preliminary, save the remark that again in several instances I reckon as literary memorials of distinguished men, volumes from their libraries; and that I reserve for separate consideration hereafter all my relics of eminent men more immediately connected with Oxford and Cambridge.

My first English historical autograph will be that of Cecil, Lord Burleigh, the famous secretary and trusty counsellor of Queen Elizabeth. It is attached to a parchment instrument authorizing the sale of some property in Warwickshire, in accordance with a private Act of Parliament which had lately been passed. He signs himself W. Burghley, and not as the name usually now appears. As co-trustees probably, the following, each bearing a name more or less distinguished in the annals of England, also sign the document, thus: Ro: Cecyll. Antho. Cooke. Tho. Mildemay. Will. Waldegrave. The narrow strips of parchment from which the seals of the signers were once pendant are still to be seen inserted, but the seals themselves are gone. On the back of the document is a cloud of witness-signatures, and other official attestations. Amongst them I make out the autographs of Thomas Heigham, R. Coke, Will. Ffox, Th. Blythe, Lewys Hughes, Wm. Ludlow, John Thynne, Thomas Ridley. The instrument will explain itself. I have modernized the spelling of the English throughout. "This indenture tripartite made the twentieth day of September in the five and thirtieth year of the reign of our sovereign lady, Elizabeth, by the grace of God, Queen of England, France and Ireland, defender of the Faith, between the Right Honorable William Cecil, of the most noble order of the Garter, Knight, Lord Burleigh, Lord High Treasurer of England, Sir Robert Cecil, Knight, one of Her Majesty's Most Honorable Privy Council, Sir Thomas Mildmay,

and Sir William Waldegrave, Knights, of the one party, and Anthony Cooke of Romford in the County of Essex, Esquire, of the other party, witnesseth that to the intent that part of the manors, lands and hereditaments of the said Anthony Cooke may be limited and appointed out in certainty, to be by him the said Anthony Cooke disposed of at his will and pleasure for the payment of his debts, and preferment of his children in marriage or otherwise, according to the tenor and effect and true meaning of an Act of Parliament made in the present five-and-thirtieth year of her Majesty's reign, intituled an Act for giving power and liberty to repeal certain uses of a Deed tripartite therein mentioned of land in certain manors, lands and rents of Anthony Cooke of Romford in the County of Essex, Esquire; now, as well the said Anthony as the said Lord Burleigh, Sir Robert Cecil, Sir Thomas Mildmay, and Sir William Waldegrave, according to the authority and power given unto them by the aforesaid Act of Parliament and by virtue of the same, do hereby limit and appoint out in certainty the manor, lands and rents hereafter mentioned, being part of the lands and hereditaments mentioned in the said Act of Parliament, that is to say, the manor of Great Dassett with appurtenances in the County of Warwick, and all and singular other the lands, rents and hereditaments of the said Anthony Cooke, set, lying and being in the County of Warwick, to be by him the said Anthony at his will and pleasure disposed of for the payment of his debts and for the preferment of his children as aforesaid, according to the true intent and meaning of the said Act. In witness whereof, to each part of this deed indenture tripartite, all the said parties have 'putt' their seals upon the day and year first above written." The year 1593, which is the date of this deed, takes us back into the Shakspearean period. Great Dassett itself, of which the document speaks, is almost Shakspearean ground. It is situate not many miles to the south-east of Stratford. The year 1593 was the 30th of Shakspeare's life. It was in this year that he published what he calls "the first heir of his invention," the poem of Venus and Adonis, and dedicated it to the Earl of Southampton. The hand that subscribed the W. Burghley which we see on the time-stained parchment whose contents I have just deciphered, had often grasped the hand of this Earl of Southampton, if it never grasped that of Shakspeare himself. Southampton, left fatherless in his infancy, had been the ward of Burleigh; and it was the expectation and intention of the prudent

Secretary that the young nobleman should marry a grand-daughter of his, the Lady Vere. But Southampton finally preferred the Lady Elizabeth Vernon, cousin of the Earl of Essex—a match which, for some reason, greatly offended Elizabeth, and brought trouble on Southampton. It is Shakspeare's familiarity with Southampton, and his perfect knowledge of the young Earl's likes and dislikes, and the entanglements into which these had brought him, that explain some of the otherwise enigmatical sonnets, as Gerald Massey has convincingly shown. The cue was probably taken from Southampton when Shakspeare ventured to bring Burleigh in some sort on the stage, in the person of Polonius. Burleigh probably was not wont to treat playwrights with much consideration. We know that his insensibility to poetry occasioned loss in the pocket to Spenser. A latent feeling against Burleigh would be very apt to spring up among men of literary tastes.

The Robert Cecil who signs above was afterwards Secretary of State to Queen Elizabeth, and it was he who carried post-haste the news of her death to James, her successor.

Sir Thomas Mildmay was the immediate blood-relation of the founder of Emmanuel College, in Cambridge. In the document above given, short as it is, the orthography of the proper names that recur therein is not constant. The name Burleigh reads Burghley and Burghleigh. The name Cecil is written Cecyll, Cicill, Ceycill. (Another form, and the earliest, as Lower informs us, was Seysell.) Mildmay is Mildemaye and Myldmaye and Mildmay. Waldegrave is Waldgrave as well. I am hence moved to observe: What folly it is, on the strength of a chance-variation which may be discovered, to meddle with the orthography of an historical name, when it has become fixed in the language and literature of a people! What folly it is, for example, to attempt the transformation of the noble word Shakspeare, or Shakespeare, into another which the eye scarcely recognizes! We see this done now and then, to this day, by virtue, as it is asserted, of a stray signature or two, by no means distinctly written. Several publications on the poet's life and writings, and several editions of his whole works, are considerably lowered in commercial value by the exhibition of this very useless caprice; on the further propagation of which, nevertheless, a new society lately instituted in London has set its mind. Is it expected that the new rendering of the name will really supersede the old one? I remember

the attempt of some whimsical persons, about forty years ago, to force *Dovor*, with an *o* in the second syllable, on the public as the name of the ancient, ever-memorable English town which confronts Calais, in France. A coach-proprietor of the day had the name, spelt in the new way, painted on all his coaches running on the great Kentish highway. But the familiar word *Dover*, imbedded in the English language and the English heart, retained its old form. So surely will it be with the name of the great national poet. It is difficult to conceive what the gratification can be in departing from the customary orthography, received not only within the British Islands, but in France and Germany, and, as I suppose, in all foreign nations, wherever the literature of England is discussed,—an orthography authorized by the poet himself on the title-page of every production of his printed in his lifetime, adopted by his "Fellows" when they published his collected plays, and by his executors when the tablets to his memory and to that of his wife were engraved and set up in the church at Stratford. Even the Messrs. Harper, of New York, with all their deformations of the English language, have not ventured on a new rendering of "Shakspeare."

I pass on now to another historical autograph. To appreciate the interest which attaches to it, I must recall a painful scene—the execution of Charles the First. While the King was preparing himself on the scaffold, for the block, Bishop Juxon, of London, who was in attendance, sought to cheer him with these words: "There is, Sir, but one stage more, which, though turbulent and troublesome, is yet a very short one. Consider," he continued, "it will carry you a great way;" and so on. The King placed in the hands of the bishop his "George," so called; *i. e.* the badge attached to the collar of the Order of St. George; and the last word which he uttered as he stretched out his neck to the headsman, was addressed to the bishop. That last word was "Remember!" the particular meaning of which the republican generals insisted on knowing from the bishop. "Juxon told them"—I adopt Hume's narrative of the incident—"that the King having frequently charged him to inculcate on his son the forgiveness of his murderers, had taken this opportunity, in the last moment of his life, when his commands, he supposed, would be regarded as sacred and inviolable, to reiterate that desire; and that his mild spirit thus terminated its present course by an act of benevolence towards his greatest enemies." It is a document in the handwriting of this

Bishop Juxon which I now produce. This prelate had been the friend and chaplain of Archbishop Laud; he is described by Hume as "a person of great integrity, mildness, and humanity, and endued with a good understanding." Charles gave great offence by preferring Juxon, an ecclesiastic, to the office of Lord High Treasurer of England, on the death of the Earl of Portland. The paper of Juxon's which I present was written in his capacity as Lord High Treasurer, and so has no relation to spiritual matters. It reads as follows: "Sir Robert Page: Pray draw an order for payment of the Captain and Garrison of Plymouth the half year due on our Lady-day last; and for so doing this shall be your warrant. Your loving friend, GUIL. LONDON. London House, the 23rd of April, 1640." The paper is endorsed, "23rd April, 1640. Sir Jacob Astley, for a half year's pay for the Garrison at Plymouth." It was in this very year, 1640, that Juxon solicited and obtained leave to resign the Treasurership, which he had himself never desired to hold; and probably this order for the payment of the troops at Plymouth was among his last official acts. In the following year Strafford was put to death; and in the year after that Charles raised his Royal Standard at Worcester, and the great civil war began in earnest. The Sir Jacob Astley above-named, fought, I observe, on the side of the King. The signature GUIL. LONDON, attached to the document just given, has still adhering to it many bright scales of pulverized gold leaf, remains of the sanding which the writing received while yet wet, according to a practice prevalent before the invention of blotting paper. The hand which scattered these glistening particles which we here see, assisted, as we have learned, in summing up the revenues of all England. That hand also had often returned the pressure of Laud's hand, of Strafford's hand; and doubtless, too, of Charles' hand, repeatedly, before the tragical parting on the scaffold in front of the palace of Whitehall.

I produce now a manuscript document bearing the signature of a Prince of Orange. It is dated at Breda, but unhappily in the year 1737, so that it is not the autograph of our William III., who died in 1702, but of an immediate successor in Holland. It is written in German, and is a decree authorizing the appointment of a Professor Ran to an academic position. The name is subscribed in French, PRINCE D'ORANGE. For thus failing to produce the autograph of William III., I make what amends I can by showing a rare folio

from my shelves, published during the life-time of that King, at Amsterdam, crowded full of very curious copperplate representations of medals, inscriptions, triumphal arches and other monuments, all in his honour, collected and dedicated to the King by Nicolas Chevalier. As specimens of the innumerable medals figured in this book, I point out one of the year 1690, commemorative of William's expedition to Ireland. On the obverse is William's head to the right, laureated, with the legend *Guilielm. III. D. G. Brit. Rex. Araus. Pr. Belg. Gub.* [Arausionensium Princeps, Belgii Gubernator.] On the reverse is seen a large fleet approaching the shore of Ireland; in the sky above is an eagle flying, bearing in its beak an olive-branch, and a branch of the orange-tree, with fruit; in one of the talons is a sceptre. The legend is *Alis non Armis* [for protection, not for attack]. In the exergue is *Trajectus in Hibern.—Lond.* $\frac{4}{14}$ *Jun.* 1690. Another medal shows William's head to the right, laureated as before, with the legend *Guil. III. M. Brit. R. De Jac. et Lud. triump.* [Jacobo et Ludovico triumphat — victorious over James and Louis XIV.] On the reverse William is seen on horseback crossing the river Boyne at the head of an army. The legend is *Et vulnera et invia spernit* [He sets at nought wounds and impossibilities]. In the exergue is *Ejicit Jacobum : restituit Hiberniam, MDCXC.* Another medal shows William on horseback, an armed host in flight before him: over one fugitive is inscribed *Jacob.;* over another, *Lansun.* Over a figure among the pursuers is written *Walker;* and over a figure extended on the ground is written *Schomberg.* The legend is *Apparuit et dissipavit.* On the reverse, William is seen standing as a Roman general; before him Ireland kneels, resting on her shield, which bears the harp; over her head William holds a cap of liberty. In the distance is a routed host. The legend is *Focos servavit et Aras.* In the exergue, *Expuls. Gal. et Rebel. Dublin. triumphans intravit.*

My next relic is a book which was once the property of a great scholar in the reigns of George the First, George the Second, and George the Third—Jacob Bryant. But little is heard of Jacob Bryant at the present time. In this respect he shares the fate of the Scaligers and Casaubons, and other literary giants of a preceding age. Jacob Bryant had been private secretary to the second Duke of Marlborough, grandson of the great Duke, and was retained as librarian at Blenheim. He wrote many learned works on mythological and other subjects. He startled Homeric students by main-

taining the purely fabulous character of Troy and its siege. My copy of Verstegan's "Restitution of Decayed Intelligence" was once owned by Jacob Bryant. It was presented by him at Eton, in 1802, to G. H. Noehden, who has recorded the fact on a fly-leaf. Mr. Noehden was the author of a German Grammar, which was keeping its ground in a ninth edition in 1843, seventeen years after the death of its author; also of an English and German Dictionary, papers in the Transactions of the Horticultural Society, and other works. Mr. Noehden was chief superintendent of the department of Numismatics in the British Museum; as also, after him, was Edward Hawkins, who likewise once possessed Bryant's volume, and made a note of the circumstance in 1827.—Verstegan's book would be one quite after the heart of Jacob Bryant, especially as seen in the type and small quarto form of 1628. The title-page reads thus: "A Restitution of Decayed Intelligence in Antiquities concerning the most noble and renowned English Nation. By the studie and travell of R. V. Dedicated unto the King's Most Excellent Majestie, 1628." (This would be James I., a kindred spirit.) Inserted in the title-page is a curious copperplate engraving of the Tower of Babel, with numerous groups of people starting off from it in divers directions. Below this is printed Nationum Origo. Another temporary possessor, bearing the name of "Francis Drake," has inscribed his name in black-letter, half on one side of these words and half on the other. The date, 1628, forbids the notion that this is an autograph of the famous Sir Francis Drake. Sir Francis died in 1596.—Let the brief records of successive owners to be seen often on the fly-leaves and title-pages of old volumes be regarded with tenderness. Let them not be indiscriminately erased. We may occasionally here meet angels unawares. We may stumble unexpectedly on memorials of great and good men. The moral effect, too, of these casual records is to be considered. They produce in us something of the feeling expressed by the poor monk in presence of Leonardi da Vinci's fresco. We are the shadows; we are the fleeting entities; not the perishable leaflets before us.

I now come to a volume which recalls the memory of Horace Walpole, the dilettanté lord of Strawberry Hill, and youngest son of the Sir Robert Walpole, the statesman who held that every man had his price. The copy of the Hesperides of Ferrarius which I possess is from the library of Strawberry Hill. This is a folio work, printed at Rome, in 1646, by Hermann Scheus. The following is its title:

"J. Bapt. Ferrarii Hesperides, sive de Malorum Aureorum culturâ et usú Libri IV." In this age of decadence in classical knowledge it may be necessary to say that the Hesperides were certain mythic nymphs, daughters of Hesperus or the West, placed in charge of gardens or islands productive of delicious fruits, but whose site was kept secret. We have first, in Ferrarius' book, the story of the visit of Hercules to the garden of the Hesperides in quest of the precious fruits (Aurea Mala); then comes an account of the introduction of these fruits, which are stated to be citrons, lemons, and oranges of various sorts, into Italy, with mythological legends relating to that introduction; and finally we have a discussion of the several varieties of the fruits just named, their properties and their proper treatment. Interspersed are splendidly executed copperplates of Hercules, from the antique; engravings of coins on which Hercules figures; also, emblematic groups representing the introduction of the *Aurea Mala* into Italy; and then spirited representations of the different fruits themselves, some in each species assuming very curious and even grotesque forms. The sketches or designs of the emblematic groups were contributed by artists of great eminence: one is by Andreas Sacchi; another by Pietro Beretini di Cortona; another by Francis Albani; another by Philippus Galiardus; another by Guido Reni; and another by Nicholas Poussin. The Hercules Farnese is by Perier. The engraver in the majority of cases is Bloemhart. It appears that Guido Reni had just died. A eulogy on his skill and genius is given. In Guido's plate, a Syren or Nereid is seen performing on the violin. In the mind of an Italian there is nothing of the ludicrous about the idea of a violin. Angels in heaven are often represented in sacred Art as playing on that instrument.

Ferrarius dedicates his work to the city of Siena, his native place. Hercules, he says, presented to King Eurysthenes only three of the apples of the Hesperides. He, Ferrarius, offers to the acceptance of his fellow-Sienese an orchard full of them. The language throughout his great folio is remarkably easy and good; nevertheless, at the end he rhetorically professes to have lowly thoughts of his literary powers, indulging at the same time in a play on his own name. These are his closing words: *Hæc habui quæ de malis aureis conscriberem, nec elegantius potui ferreo stylo*, FERRARIUS."

Often must Horace Walpole have lifted down this curious volume from its place; often must his hands and those of his friends have

turned over the splendid engravings therein. Strawberry Hill was generally full of visitors. In 1760 the Duke of York unceremoniously appeared at the door. "I showed him all my castle," Horace Walpole says to G. Montague, "and he would have the sanctum sanctorum of the library opened." Facing the title and occupying much of the page is a huge shield of arms of some former possessor, apparently a Netherlandish Count. The crest is a black duck minus its bill and feet. On the first and fourth quartering the same object is seen. The motto seems to allude to this creature—*Enatent aut evolent.* Below, in small letters, is engraved—"R. Collin, Chalcogr. Reg. fecit. Bruxellæ, 1680." Some friend of Horace Walpole's has, as I presume, interpreted for him the spirit of the sentence, *Enatent aut evolent*, and has written down for him over the great shield, in a fair hand, the following passage, it may be, of Cicero or Seneca: "Hujusmodi comparandæ sunt opes quæ simul cum naufrago ENATENT"—suggesting that the aspiration of the motto is after mental riches. Such be mine, or none! it says. The handwriting is not Walpole's, neither is it Gray's; but Gray may have furnished the illustration, which is ingenious and apt. On the same page with the great foreign shield appears Horace Walpole's own bookplate, the evidence of his former ownership. It shows the Walpole arms with the proper heraldic mark of cadency—a star—Horace being the third son of the first Earl of Orford, who was the famous Sir Robert Walpole, Prime Minister temp. George I. and George II. The motto, *Fari quæ sentiat*, is on a riband over the crest, and underneath the shield is engraved, in italic script, *Mr. Horatio Walpole.* The *Fari quæ sentiat* is an excerpt from Horace's Epistle to Alb. Tibullus and his companions (Ep. Lib. i. Ep. 4)—a piece which, from the character of its contents, may have been a favourite with Sir Robert—and his son likewise. Its spirit certainly was in harmony with their tastes. I give a few lines. It will be seen that the *Fari quæ sentiat* has reference to ease of expression and eloquence, and not to what we call freedom of speech:

> Dî tibi formam,
> Dî tibi divitias dederunt, artemque fruendi.
> Quid voveat dulci nutricula majus alumno
> Qui sapere et *fari* possit *quæ sentiat*, et cui
> Gratia, fama, valetudo contingat abundè
> Et mundus victus, non deficiente crumenâ?

To thee the gods a form complete,
To thee the gods a fair estate,
With bounty gave, with art to know
How to enjoy what they bestow.
Can a fond nurse one blessing more
E'er for her favourite boy implore,
With sense and *clear expression* blest,
Of friendship, honour, health possest,
A table elegantly plain,
And a poetic, easy vein?

The fulfilment of the *non deficiente crumenâ* part of the prayer was secured to Horace Walpole by his father. He held for life, we are told, through the favour of Sir Robert, the following sinecure offices: the Ushership of the Receipt of the Exchequer, the Comptrollership of the Great Roll, and the Keepership of the Foreign Receipts. A third shield of arms appears in my Ferrarius. It has been fastened to the printed title-page of the volume. The possessor who did this seems to have been offended at the sight of a staring wood-cut in the middle of the title-page: a coarse rendering of the common badge of the Jesuit Society, displaying huge iron nails, &c., very much out of place on the title-page of such a work as this. He accordingly inserted, with neatness, his own shield of arms in such a way as to conceal from view the obnoxious ornament. The motto on this plate is *Lucent et ornant*—the allusion being to the stars on the shield, and to the name, possibly, of the family represented.

It may be added that Brunet, the great bibliographer, in his notice of the Hesperides of Ferrarius, speaks of a copy of the work which in 1861, at the sale of the Marquis of Pins-Montbrun, at Toulouse, fetched two hundred francs—but this was perhaps in some degree on account of the binding. The binding, he says, was lemon-coloured morocco divided into compartments, showing the branches of an orange tree in gold of several colours, with the family arms of the Marquis of Pins-Montbrun. Some of the plates were also coloured.

I show a second relic of Horace Walpole in a copy of his "Fugitive Pieces in Verse and Prose," printed at his own press at Strawberry Hill, in 1758, bound up with his "Castle of Otranto," from the same press. The Fugitive Pieces have, on the title-page, the motto, *Pereunt et imputantur*, words aptly seen sometimes on the face of ancient dials. Below is a copperplate etching of Strawberry Hill; in the foreground a laurel tree supporting on one of its branches the Walpole shield; on a riband underneath is the "*Fari quæ sentiat*" already intrepreted.

Again I produce as a literary relic a volume from the library of a man of letters eminent in the last and present century. It may have been observed that Isaac Disraeli dedicates his Curiosities of

Literature to Francis Douce. "To Francis Douce, Esq.," the inscription reads, "these volumes of some Literary Researches are inscribed as a slight memorial of Friendship, and a grateful acknowledgment to a Lover of Literature." In the preface to the collected works of Isaac Disraeli, issued by his son, the present Benjamin Disraeli, we are informed that at the close of the last century the number of readers in the Library of the British Museum seldom ever exceeded six at a time, and that one of these was very constantly Francis Douce. He became the author of a highly-prized series of Illustrations of Shakspeare and Ancient Manners, and other cognate productions; he gathered likewise a private library—of which Dibdin, in his Bibliomania, says: "The library of Prospero (*i.e.* Douce) is acknowledged to be without a rival in its way. How pleasant it is," he exclaims, "only to contemplate such a goodly prospect of elegantly-bound volumes of old English and French literature! and to think of the matchless stores which they contain, relating to our ancient popular tales and romantic legends!" The volume from Douce's library which I possess is Francis Grose's "Provincial Glossary, with a Collection of Local Proverbs and Popular Superstitions." It has Douce's bookplate and a MS. note in his handwriting. Grose, in his preface, tells us of his having gathered his accounts of popular superstitions from the mouths of village historians as they were related to a closing circle of attentive hearers, assembled on a winter's evening round the capacious chimney of an old hall or manor-house; "for formerly," he goes on to say, rather amusingly to us in these later days of steam and electricity—"formerly, in countries remote from the metropolis, or which had no immediate intercourse with it, before newspapers and stagecoaches had imported skepticism and made every ploughman and thresher a politician and freethinker, ghosts, fairies and witches, with bloody murders committed by tinkers, formed a principal part of rural conversation in all large assemblies, and particularly those in Christmas holidays, during the burning of the yule-block." Then speaking of the habiliments in which ghosts were reported to have appeared, Grose happens to say: "One instance of an English ghost dressed in black is found in the celebrated ballad of William and Margaret, in the following lines: 'And clay-cold was her lily hand, That held her sable shroud.'" It is upon this point that Douce makes his manuscript remark in the margin. He desires us to note that "Mr. Bourne, the elegant translator of this song, thought this licence,

even in poetry, inadmissible. In his translation of this passage it is most judiciously avoided: 'Quâque sepulchralem pedibus collegit amictum, Frigidior nivibus, candidiorque manus.'"—The Mr. Bourne here named is of course the well-known Vincent, or Vinny, Bourne.

By a relic of Douce's we are brought, as we have seen, in relation with Isaac Disraeli; and Isaac Disraeli puts us in relation with Dr. Samuel Johnson, slightly, in this way: When Isaac Disraeli was yet a very youthful and quite nameless writer, as his son Benjamin informs us, he ventured one day tremblingly to present at Dr. Johnson's house an original manuscript, to be examined and pronounced upon by him. It happened to be the period of Dr. Johnson's last illness; and the reply returned by the Doctor's black servant, Richard, at the door, was, that his master was not well, and could not attend to anything of the kind. The timid young author, not aware of the seriousness of the Doctor's condition, took this to be a mere put-off. But in a few days Johnson's death was announced. We shall presently be again brought near to Dr. Johnson.—Douce's library, it may be of interest to know, has been added to the stores of the Bodleian at Oxford. The motto on his bookplate, in my copy of Grose, is *Celer et vigilans*—an allusion to the three fleet greyhounds which are seen racing across his escutcheon.

I cherish with care a pamphlet containing a few words in the handwriting of the author of the Curiosities of Literature—Isaac Disraeli himself. This relic has a further value with me, because it was once the property of another distinguished literary man, Samuel Rogers, the poet and banker. The pamphlet in question is an answer, by Isaac Disraeli, to some strictures of Lord Nugent on his "Commentaries on the Life and Reign of Charles the First;" and this particular copy was the one presented by its author to Rogers, as is shown by the autograph inscription on its outer title-page. The following are the few words on account of which I treasure this tract: SAMUEL ROGERS, WITH THE AUTHOR'S REGARDS. The matter of the little book is also full of interest, treating of the characters of Sir John Eliot, Hampden and Pym, in the same strain of minute research which characterizes the Curiosities of Literature and other works of the elder Disraeli.

Another of the class on whom Dibdin has fastened the designation of Bibliomaniacs must now engage our attention. We have all, doubtless, heard of the insatiable book collector, Richard Heber,

brother of Reginald Heber, bishop of Calcutta. Possessed of wealth, he set no bounds to a passion, awakened in him in early youth, for curious and rare volumes and books in general. His aim was to amass a perfect library; and he thought nothing of starting at a moment's notice on a journey of hundreds of miles, to attend a sale where there was a chance of securing a book which he did not already possess. At Hodnet, the family home in Shropshire, usually associated with the memory of Reginald Heber, he had a collection for which he built a special receptacle. A house where he resided in Pimlico was filled from top to bottom with books. In York Street, Westminster, he had another house similarly furnished. In rooms on the High Street, Oxford, he had a library. In like manner, even in cities abroad—in Paris, at Antwerp, at Brussels, at Ghent—he possessed large collections. The titles of his books, when sold after his death in his 59th year, in 1834, filled five thick octavo volumes. In his English libraries there were 85,000 volumes; in his foreign, 42,000. They have been calculated to have cost him £100,000. In Dibdin's Decameron, or Ten Days' Pleasant Discourse on Books, the interlocutor named Atticus is understood to be Mr. Richard Heber. Atticus's apology for desiring three copies of the same book is as follows—it reveals a willingness to oblige friends: "Why, you see, sir," he says, "no man can comfortably do without three copies of a book. One he must have for a show copy, and he will probably keep it at his country-house; another he will require for his own use and reference; and unless he is inclined to part with this, which is very inconvenient, or risk the injury of his best copy, he must needs have a third at the service of his friends." Heber was the intimate friend of Sir Walter Scott and other distinguished literary contemporaries. In 1821 he was returned a member of Parliament for the University of Oxford. My first relic of Heber is a volume from one of his libraries. It is stamped inside, as were all his books, with the words *Bibliotheca Heberiana.* I value the work for this, of course; but also for its contents. It is a folio, printed at Utrecht (Trajecti ad Rhenum) by Gilbertus à Zyll, in 1671, and is entitled, Monumenta Illustrium Virorum et Elogia. It is stated on the engraved title-page to be Editio nova, aucta Antiquis Monumentis in Agro Trajectini repertis. The original work, we are informed in the preface, was by Sigifridus Rybischius, for which the plates were engraved by Tobias Fendtius. It contains numerous epitaphs of the classic and

mediæval periods, with etchings of the ancient monuments, tombs and tablets on which they are carved. These are from Rome and other cities of Italy. In this book of Richard Heber's I can lay my hand on some inscriptions which on occasion one might search for in vain in many quarters: for example, the epitaphs of Angelus Politianus, Marcilius Ficinus, Leonardus Aretinus, Laurentius Valla, Musurus, Heron. Alexander, Bessarion, Sadoletus, Joh. Picus Mirandula, Paulus Jovius, Raphael Maffæus, Joh. Jovianus Pontanus. Poggius Brandolinus, Bartholomæus de Saliceto, Gratianus Clusinus, Accursius, to say nothing of those of Dante, Ariosto, Petrarch.

A second relic of Richard Heber which I possess is a bound Catalogue of the library of James West, President of the Royal Society, who died July 2, 1772. This book bears the usual stamp, *Bibliotheca Heberiana;* but besides, its value is very greatly enhanced by two or three sentences, very characteristic of a connoisseur of books, written on a fly-leaf by the hand of Mr. Heber himself. A quondam owner of the Catalogue, Mr. F. C. West, probably a relative of the late president's, just below his own signature, writes, "Vide MS. note in Mr. Heber's handwriting, on the opposite leaf." On this leaf accordingly we have the following remarks on the Catalogue of books before us: "This is the original auction Catalogue," Mr. Heber records, "by which it was intended to sell the 'large and noble library' of James West, Esq., President of the Royal Society. The friends of the deceased, however," Mr. Heber goes on to inform us, "judging it, very properly, deplorably insufficient, directed it to be cancelled; and employed Samuel Paterson at a short notice to compose the whole afresh. It is curious to compare the two Catalogues," Mr. Heber says, "if it were only to show how little can be known of the value of the most curious library when ignorantly and unskilfully described." He then subjoins, "Paterson used to quote exultingly the testimony of Topham Beauclerc, who declared to him with an oath, that on looking over his Catalogue he could not believe it to be the same collection."—This mention of Topham Beauclerk again brings us near Dr. Johnson. He was a youthful club-associate of the Doctor's, and when he died, Dr. Johnson said that "Topham Beauclerk's talents were those which he had felt himself more disposed to envy than those of any whom he had known." He was a son of Lord Sidney Beauclerk's, and a grandson of the Duke of St. Albans.—My copy of *Hornius de Originibus Americanis, Hagæ*

Comitis, 1652, bears on a fly-leaf the autograph, "R. Heber," which is held to be that of Reginald, and not Richard, Heber; as it appears not to have been the habit of the latter to inscribe his name in his books. This volume is additionally of interest for having likewise the autograph of "H. Grove," who was one of the *collaborateurs* of Addison in the production of *The Spectator*. He was the writer of Numbers 588, 601, 626 and 635, in that series of papers. From some contemporary verses on the death of Mr. Grove, who was a Presbyterian minister, I quote the following:

> "If every grace that e'er the good adorn'd,
> If every science that the wisest learn'd,
> Could merit thy regard and ask thy love,
> Behold them join'd, and weep them lost, in Grove."

I now produce some autographic manuscript which brings us nearer still to Dr. Samuel Johnson than we were brought above. Though not penned by the Doctor, it was written by a hand that had grasped his, viz., by the hand of Dr. Samuel Parr. We know that intellectual encounters took place between Parr and Johnson. Thus Boswell records, in the year 1780, that "having spent an evening at Mr. Langton's with the Rev. Dr. Parr, he (Dr. Johnson) was much pleased with the conversation of that learned gentleman; and after he was gone, said to Mr. Langton: "Sir, I am obliged to you for having asked me this evening. Parr is a fair man. I do not know when I have had an occasion of such free controversy. It is remarkable how much of a man's life may pass without meeting with any instance of this kind of open discussion." During a discussion between these two formidable personages, one of them, Dr. Johnson, stamped his foot. Immediately, the other, Dr. Parr, stamped *his* foot. "Why do you stamp your foot, Dr. Parr?" "Because, Dr. Johnson," replied the other, "I would not have you think that you have the advantage of me by even a single stamp of the foot." Society was in a curious state when such phenomena as Drs. Johnson and Parr were possible. The general range of thought and experience was narrow; and culture was one-sided. Men of unusual capacity and vigour and keenness of view were thus tempted to be dogmatical; and the deference of inferiors readily transformed them into despots. English communities cannot evolve such characters now, nor would they endure them. There are in these days scores of persons scattered about quite the equal of Johnson and Parr in strong sense, and power and decision

of mind; but they are drilled into good manners by their surroundings; they are made to know and keep their place by the respectable talents and culture of a multitude of other people. Parr's learning, and Johnson's too, so far as it was formal and scholastic, was of a type which in the present age has ceased to be honoured, consisting of a familiarity with the letter of two dead languages, acquired unphilosophically, and used of necessity in a petty, contracted way. These two men, with a large group of contemporaries whom they conspicuously represented, were for the most part outside the noble sphere in which scholars of the present day find their pastime. Comparative philology, universal history, science in the modern sense, theoretical and applied, were to them sealed mysteries.—Parr, by some chance, was led to adopt the principles of the Whigs; hence he is patronized by Macaulay, who goes out of his way to introduce his name in his narrative of the trial of Warren Hastings, and to style him at the same time the greatest scholar of the age. "There," he says, *i.e.* in Westminster Hall, while Burke was arraigning the great proconsul of India, "there were to be seen side by side the greatest painter and the greatest scholar of the age. The spectacle had allured Reynolds from that easel which has preserved to us the thoughtful foreheads of so many writers and statesmen, and the sweet smiles of so many noble matrons. It had induced Parr to suspend his labours in that dark and profound mine from which he had extracted a vast treasure of erudition—a treasure too often buried in the earth, too often paraded with injudicious and inelegant ostentation, but still precious, massive and splendid." On the other hand, Sydney Smith, also a Whig, ventures to say of Parr that he was rude and violent, as most Greek scholars are, unless they happen to be bishops (a little oke this, at the expense of Bishop Blomfield). "He has left nothing behind him," Sydney Smith goes on to say, "worth leaving; he was rather fitted for the Law than the Church, and would have been a more considerable man, if he had been more knocked about among his equals. He lived with country gentlemen and clergymen, who flattered and feared him." The diocese of Gloucester had a narrow escape. It came within an ace of having Parr as its bishop.

The tobacco pipe was an inseparable adjunct of Parr, and contributed not a little to the coarseness of his character. In a small Hogarthian sketch of him given in the National Illustrated Library edition of Boswell's Johnson, he is represented with it in his hand.

When appointed to preach before the University of Cambridge, he was puffing his pipe in the vestry-room of the church up to the moment of his entering the pulpit. An early pupil of his recalls, rather graphically, a domestic scene in which again the pipe figures: "I was frequently sent by him," he says, "to obtain the *Courier* newspaper, and, upon my return, he made me read to him the Parliamentary debates, which were at that period full of interest. I sometimes took a malicious pleasure in giving the utmost possible effect to the brilliant passages in Pitt's speeches, upon which the Doctor would exclaim, 'Why, you noodle, do you dwell with such energy upon Pitt's empty declamation?' At other moments he would say, 'That is powerful, but Fox will answer it.' When I pronounced the words 'Mr. Fox rose,' Parr would roar out 'Stop!' and after shaking the ashes out of his pipe, and filling it afresh, he would add, with a marked emphasis, 'Now, you dog, do your best!' In the course of the speech in question, he would often interrupt me in a tone of triumphant exultation with exclamations such as the following: 'To be sure!'—'Capital!'—'Answer that if you can, Master Pitt!'—and at the conclusion: 'That is the speech of the orator and statesman: Pitt is a mere rhetorician;' adding, after a pause, 'a very able one, I admit.' Sometimes after hearing the first three or four sentences of a speech of Mr. Pitt, he would say, 'Now the dog is thinking what he will say: Fox rushes into the subject at once.' Here let me remark," adds the reporter of this scene, "that when Parr called any of his pupils *noodle* or *dog*, or even, in some instances, *blockhead*, it was a proof that they were in high favour, and on these occasions his good-natured smile showed that he spoke in perfect good humour; but the word *dunce* he always used contemptuously." Parr was unfortunate in his wife, who delighted in worrying him. Porson used to say "Parr would have been a great man but for three things—his trade, his wife, and his politics."

Edward Henry Barker, of Thetford, in Norfolk, published two volumes of "Parriana, or Notices of the Rev. Samuel Parr, LL.D., collected from various sources, printed and manuscript." Mr. Barker had lived for several years in Parr's house at Halton, revelling in the curious, out-of-the-way contents of his library. The *Quarterly Review* uses this irreverent language of the death of Dr. Parr: "The demise," it says, "of the awful Chimæra of Halton, which had so long buzzed in vacuo, was something of an event in 1825."

Parr was famous for his Latin epitaphs and sepulchral inscriptions. Those inscribed on the monuments of Gibbon, Johnson, Burke, Fox and Sir John Moore are by him. At table once, Dr. Parr, in ecstasies at the conversational powers of Lord Erskine, called out to him (though his junior): "My Lord, I mean to write your epitaph!" "Dr. Parr," replied the clever Chancellor, "it is a temptation to commit suicide."

The relic which I preserve of Dr. Parr is a thin volume consisting of three tracts on classical subjects, bound together. The Doctor has written their respective titles on the first fly-leaf. "Spohn de Agro Trojano. Lipsiæ, 1814. Curiæ Criticæ in Comicorum Fragment ab Athenæo servata. Auctore Meneke. Berol. 1814. Gottlieb. Ernesti Epistola ad Schleusnerum de Suidæ Lexicographi usu ad Crisin et Interpretationem Librorum Sacrorum. Lipsiæ, 1875." To show, as I suppose, that he had minutely looked through these tracts, the Doctor adds the characteristic observation: "Sphon's Latinity is perplexed. In the note page 35, line 10th, I think Automedon et Alcimus should be in the accusative, as followed by dilectos." Parr's handwriting is very bad: it is slovenly and indefinite. "You always wrote hieroglyphically," says Charles Lamb to George Dyer, "yet not to come up to the mystical notations and conjuring characters of Dr. Parr." (Quoted in Forster's Life of W. S. Landor, page 93.)

We have seen the friendly relations subsisting between Dr. Parr and Dr. Johnson. I suppose they were not brought much together. When negatives and positives, so decided, approached each other, there must always have been considerable risk of explosion. Disparity of age may have helped to keep the peace. Dr. Parr maintained also a life-long friendship with Walter Savage Landor, a character with whom it required tact to keep on terms. Here again difference of age was probably advantageous. Landor was Parr's junior by many years. "I think," writes Landor's brother, in Forster's Life, "they were kept from quarrels by mutual respect, by something like awe of each other's temper, and a knowledge that, if war began at all, it must be to the knife."

I have nothing to show of Landor's, but I give a sentence from a note of the late Col. Walter O'Hara's, of Toronto, who at one time was intimately associated with Landor, and is named in Forster's Life at pp. 136, 199. Col. O'Hara says: "With respect to the

eminent person whose biography has occasioned your kind reference to me, I beg to say that my acquaintance with him commenced 1808, and that I have always regarded him as one of my most valued friends. We visited Spain together in that year; and I retain always the strongest admiration of his noble qualities."

I should be proud if I could exhibit a letter in Johnson's handwriting. Such documents are occasionally to be met with in London, but considerable sums must be paid for them. I have some fragments, however, in Mrs. Thrale's handwriting, the lady to whom Dr. Johnson was for sixteen years and more indebted for much care and kindness, and for whom he entertained a high esteem. We are told that he said of her, that if not the wisest of women in the world, she was undoubtedly one of the wisest. Mrs. Thrale's maiden name was Salusbury; Mr. Thrale, her first husband, was owner of the great Brewery in Southwark, since known as that of Barclay and Perkins. The marriage seems to have been one of convenience rather than deep affection. Thrale sat for Southwark in Parliament, and was very wealthy. At his town house in Southwark and his country villa at Streatham, a room was set apart for the especial accommodation of Dr. Johnson. When Mr. Thrale died, his widow, as we all know, married an Italian musical composer and vocalist, named Piozzi. She afterwards published a volume of anecdotes of Dr. Johnson, and other works. It was her habit to make on the margin of books that she read, numerous manuscript notes; and after annotating one copy, she would sometimes take up another of the same work and enter the same observations. Mr. Bohn, the eminent bookseller of London, had a copy of Boswell's "Life of Johnson," annotated by Mrs. Piozzi, in which the remarks were identical with those n Dr. Wellesley's copy of the same book. In a letter written by her at Bath, in 1818, to Sir James Fellowes, of Adbury House, Hants, she speaks of one Dr. Hales, who "on last Sunday fortnight said confidently in the pulpit that the world would end that day sixty-two years." She then adds: "You will find innumerable reflections on that event in King's "Morsels of Criticism," which I have loaded, if not deformed, by numberless notes—manuscript, but legible enough, for I looked them over since Hales' sermon, as I thought they would amuse you. 'Tis almost a pity," she then observes, "you should suffer them to be sold after my death." She had bequeathed to him all her annotated books. The handwriting in her marginal

notes is often minute, but always very neat and clear, with a careful punctuation. She was, I should suppose, an admirer of a fine hand. Her appreciation of this accomplishment suggested to her a lesson in regard to self-management, in a letter to the Sir J. Fellowes already named. "Our longest life," she says, "is but a little parenthesis in the broad page of time, which is itself a mere preface or prologue to Eternity. Let us, however," she exhorts, "write the brief period neatly, and leave our visiting ticket to the world such as may not disgrace us." Sir J. Fellowes' library has been dispersed under the hammer, and Mrs. Piozzi's annotated volumes have got abroad. Occasionally, on a book-stall, one of them may be picked up. The one which has chanced to come into my possession is a volume consisting of two works bound up together: Galloway's "Brief Commentaries on the Book of Revelation," and Witherby's "Observations on the Restoration of the Jews." From the margins of each of these I select a characteristic note or two.—Galloway in a certain place shows that LUDOVICUS, the name in Latin of sixteen of the French kings, could be made to represent the mystic number 666; and this, he says, he had shown seven years before, in another work. Galloway then refers to a writer who "within the last three years has asserted the same thing, without assigning any reason for his opinion. If he has unfairly ploughed with either of my heifers," Galloway then remarks, "all that I have to say to him is, what Virgil said on a similar occasion—'Hoc ego versiculos feci, tulit alter honores,'" &c. On this Mrs. Piozzi notes in the margin: "No need to plough with *his* heifer, surely. Comenius, author of our Babies' "Orbis Pictus," made this very calculation, and showed it to Louis Quatorze, who thence imbibed his notion of founding a Universal Monarchy." In another place Galloway says of a certain interpretation which he advances, that it is "a demonstration irresistible, because as evident to human perception as that of there being a sun in the firmanent or an earth in which we live." Mrs. Piozzi is inclined to be more cautious, and writes: "I am not so confident; but the conjecture is a good one, and very likely indeed to be true." Again: at the beginning of Witherby's "Observations"—where that writer solemnly counsels the Jews of England not to be influenced by a late pamphlet addressed to them by one Bicheno—Mrs. Piozzi remarks: "This writer is a *little* wilder and foolisher than the man he censures, writing to the Jews to beg of them not to set out for the Holy Land at the call of *Mr.*

Bicheno! Very comical! As if Mr. Bicheno's call was to suffice. No! no!" she then adds, with an outburst of orthodoxy worthy of Dr. Johnson himself: "when the Jews march, it will be at God's immediate and apparent command; and their Leader will not be a Dissenting Teacher, I trow. What nonsense!"—And again: when the observation is made by Witherby that "the Christian and Jewish religions are more united and combined than is in general imagined, and when the gracious promises are fulfilled to the Jews, it will be a great blessing to the Gentile Churches also—it will be to both as a restoration to life, and the Gentile Churches will then assume a much more Jewish appearance than they ever have done in times past—Mrs. Piozzi remarks: "This man is the first to lay hold upon the skirts of a *Jew*, unless Mr. Cumberland has been beforehand with him." (Richard Cumberland, author of a play entitled "The Jew," and other comedies, is meant. Goldsmith called him the Terence of England: he died in 1811.)—The Comenius above spoken of was Joh. Amos Comenius, of Amsterdam. An English translation of his "Orbis Pictus," by Ch. Hoole, appeared in 1659. It was evidently a nursery-book in Mrs. Piozzi's childhood.—The emphatic "No! no!" which we had in the margin above, I observe in a letter addressed by Mrs. Piozzi to her young friend, Wm. Aug. Conway, consoling him under a severe disappointment received at the hands of a lady: "Do not, however," she says, "fancy that she will ever be punished in the way you mention. No! no! she'll wither on the thorny stem," &c. The reverse exclamation appears in a letter to Sir J. Fellowes: "Yes! yes!" she says, "when people will talk of what they know nothing about, see what nonsense follows!"

In connection with Dr. Parr it was stated that memoirs of him, in two volumes, had been compiled by E. H. Barker, of Thetford. The memory of this Mr Barker deserves to be perpetuated as that of one who was among the first to favour a reform in the mediæval system of mastering Latin and Greek which prevailed in English schools at the beginning of the present century. He began to translate grammars and lexicons from the Latin into the English tongue, and to deviate from the general custom of annotating school books in a language "not understanded of the people." He published for the use of English students portions of the classics with copious English notes, replete with illustrative matter of great interest. He edited, in English, Stephens' Thesaurus of the Greek Language, a ponderous work consisting of 11,752 double-column folio pages, and an English

translation of Bultmann's Greek Grammar. Conjointly with Prof. Dunbar, of Edinburgh, he published what was nominally a translation of the time-honoured Schrevelius, but virtually a new and greatly improved work. I revert with all the more pleasure to the name of E. H. Barker, as it chanced to be a part of my early experience to derive a good deal of light and help from his editions of portions of Cicero and Tacitus that fell accidentally, as it were, into my hands. In the absence, in those days, of useful books of reference, the varied and curious information with which his annotations abounded was, as I remember, keenly relished. In like manner his additions to the English reprint of Professor Anthon's Lempriere, and the miscellaneous matter, especially the botanical articles, embodied in the English Schrevelius, furnished delightful reading. By the worshippers of the old routine in schools, Barker was anathematized as one who betrayed the arcana of a craft, and vulgarized one of the learned professions. He was to be frowned down as a dangerous innovator. If he facilitated the studies of the young, who ought to be made to surmount difficulties, it was impossible that he could be himself a scholar. C. J. Blomfield, afterwards Bishop of London, came down very heavily on Barker in an article in the *Quarterly Review*. Barker replied in a pamphlet entitled *Aristarchus Anti-Blomfieldianus*. Unhappily the old style of learned controversy, fashionable in the days of Bentley, had not yet died out. There were two classical periodicals of the hour: one, the *Classical Journal*, with which Barker was connected as editor, I think; the other, the *Museum Criticum*, in which Blomfield wrote. Barker, in his pamphlet, attributed to Blomfield's pen everything hostile to himself in the *Museum Criticum:* but mistakenly, as it appeared afterwards. And the *Museum* took occasion to say of Barker's philippic, that "it carried personal invective to such a frightful extent as never before disgraced literature." That the *Museum* itself could be very satirical, we have evidence in the same paper. Barker whimsically attached to his name sometimes, the letters O. T. N., which he intended to be understood as signifying of Thetford, Norfolk. The *Museum* affects not to understand these letters. "What is the import," it says, "of the *tenebricosæ literæ* O. T. N., which Mr Barker affixes to his name, we cannot undertake to decide. We are not aware that they denote any academical distinction. We conclude therefore that they imply some personal attribute, like the S. S. (sinner saved) of another renowned character." [Huntington.] Again, referring to the con-

ductors of the *Classical Journal* above named, the *Museum Criticum* says: "When we speak of their incessant attacks upon us, it is right to mention, that for the last few years we have had but small acquaintance with the *Classical Journal*, having found that the information to be derived from its pages by no means compensated for the disgust excited by the vanity, dullness, and execrable taste of the leading writers, and still more by their unwearied spirit of detraction." And once more: here is a specimen of haughty style and rampant prejudice, from the same learned periodical. In "Peter's Letters to his Kinsfolk," Sir Walter Scott, speaking of the literature of Edinburgh, had chanced to say: "Mr. Dunbar, the Professor of Greek, has published several little things in the *Cambridge Classical Researches*, and is certainly very much above the run of Scholars." "*The Cambridge Classical Researches*," being the second title or heading of the *Museum Criticum*, that sensitive journal deemed it necessary thus to take notice of Scott's remarks: "What the common run of scholars at Edinburgh may be, we know not; but what Mr. Dunbar is, the world has had some opportunity of learning from a work which he calls a continuation of Dalziel's *Collectanea Græca*. Our only wish is to contradict most positively the assertion that he has ever been a contributor, small or great, to this publication. How such a strange misstatement originated, we cannot form the least conjecture." The date of these amenities of literature is A.D. 1832.

Barker's attempt to popularize classical studies was strongly supported by Prof. Anthon, of New York, whose editions of classical writings were always at once reprinted in England and largely used, showing that there was a want in this direction unsupplied. Barker and Anthon were both well abused, but imitated. Major translated Porson's Euripides: and later, Dr. Arnold issued a Thucydides with English elucidations; and now all English Scholars annotate copiously in English. Prof. Anthon, in 1845, in the preface of his own Classical Dictionary, recalls the surprise which was excited in 1825, when, on having been employed to prepare a new edition of Lempriere in 1825, he hinted the propriety of making some alterations in the text. The answer received by him from one quarter was, that one might as well think of making alterations in the Scriptures as in the pages of Dr. Lempriere!

Here is E. H. Barker's autograph. It is contained in a volume printed at Padua in 1729, and bound in Italian vellum. It contains

twelve Academic Orations, in splendid Latin, by Facciolati, the author of the celebrated Totius Latinitatis Lexicon. Over a book-plate, bearing the arms of Joseph Smith, appears the following memorandum in manuscript. "Dec. 6, 1815. Priestley. Collated and Perfect. Large Paper. EDMUND HENRY BARKER, Thetford, Norfolk." The handwriting is particularly good and clear; a great contrast to Parr's slovenly script. It is implied, I suppose, that Priestley, a learned bibliopole of the day, had described as above, the volume before us. The spirit of Facciolati's Orations is precisely that which actuated Barker and his school. He condemns, for one thing, the too long detention of the young amidst the preliminaries of mere Grammar, which appears to have been a custom in Italy as well as in England; and he prays the young student carefully to consider that "Non Latinum sermonem ex Grammaticâ, sed Grammaticam ex Latino sermone natam esse:"—a leading principle in the so-called Ollendorf system of teaching.—The Joseph Smith whose book-plate is noticed above, was British Consul at Venice in 1755. While resident there, he indulged largely in book-collecting; and there most likely our Facciolati was picked up.

Dr. Blomfield, in breaking a lance with whom we have seen Barker somewhat injudiciously engaged, was a gigantic Latin and Greek scholar. Everything about such an Hercules of learning, we should expect perhaps to be of proportionate magnitude. Even the tractates constituting his light reading, we might imagine to be somewhat ponderous. I have a volume, once the property of Dr. Blomfield, quite in keeping with such an idea. It is a collection of conjectural readings in a number of Greek and Latin authors by a Netherlandish or Hanoverian scholar. It is a thinnish quarto. A hundred years ago, when an author wished his work to make a very respectable show, he issued it as a quarto. Ephemeral controversial pamphlets were often of this shape. The work which I have bears this title, printed in red ink: "Io. Schraderi Liber Emendationum. Leovardiæ, 1776." —In the middle of the title-page is a vignette group from a copper-plate: Minerva standing on a number of modern-looking volumes; to her right and left are the Muses of Tragedy and Comedy. Leovardia is Leenwarden, the capital of Friesland. The work contains a large number of emendations proposed by Schrader in Catullus, Propertius, Martial, Virgil, Ovid &c., with some proposed by others in Homer and Hesiod. To make the quarto more important still, it is strongly

and heavily bound in durable calf, and properly gilt. The covers are lined inside with marbled paper, and in the usual situation is Dr. Blomfield's book-plate, showing his own arms, impaled with those of the see of London. Below is engraved, in plain round hand, *Charles James Blomfield, D.D.* We can readily picture to ourselves, the learned bishop turning the pages of this little brochure of Schrader with a dignified indifference, and yawning in a moment of ennui over its miscellaneous contents.

Dr. Samuel Butler, who lived 1774–1840, is another sample of the heavily-weighted *homo eruditus* of sixty years ago. I have a quarto relic of him likewise, but not quite so bulky a one as that which represented Bishop Blomfield. Dr. Samuel Butler was a celebrated head master of Shrewsbury school. His name is associated especially with a Classical Atlas, and works on Ancient Geography. He published also an edition of "Æschylus," in four volumes quarto, and another in six volumes octavo. (Observe that of this dramatist only seven plays are extant.) Being, unlike Parr, a producible man, and not given to much humour like Sydney Smith, he was raised in 1836 to the Episcopal Bench as Bishop of Lichfield.—This thin quarto, bound in good vellum, has within its cover the following autographic inscription: *S. Butler: ex dono socer. sui: Viri Reverendi E. Apthorp, S.T.P., 1799.* The volume itself consists of a very curious astrological poem in Greek by the Egyptian priest Manetho, Gronovius' *editio princeps* of that piece. The whole title is as follows: *Μανέθωνος Ἀποτελεσματίκων Βίβλια ἕξ.* Manethonis Apotelesmaticorum Libri sex: Nunc primum ex Bibliothecâ Mediceâ editi: curâ Jacobi Gronovii, qui etiam Latinè vertit ac notis adjecit. Lugduni Batavorum, apud Fredericum Haaring. 1698.—On the title-page is the publisher's impresa or device. A sturdy husbandman is seen industriously delving; a landscape with mountains, a city and a village in the background: on the sky is the legend, *Fac et Spera.* The volume is inscribed by Gronovius to Magliabecchi, the celebrated librarian of the Grand Duke of Tuscany; also to Conrad Ruysch, chief magistrate of Leyden. The former had given Gronovius, when in Florence, willing access to the only copy of the Apoteleusmatica known to exist, and had allowed him to take a copy of it with his own hand. The latter had travelled in Italy; and whenever he and Gronovius met, their talk always turned on happy hours spent there. Gronovius styles Magliabecchi, Vir clarissimus et præcipuus Eruditorum hujus temporis.—The E. Apthorp above named by Dr. Butler as his father-in-law was a

theological writer of considerable note.—In the Præfatio of Gronovius I caught sight of an unexpected and rather odd reference to an Otchibway word, familiar enough to ourselves. Manetho, or Manethos, he says, was a name common in Egypt, whence it may have passed over to America, where, travellers inform us, "Manetoe" means an evil spirit. (Patet id nomen crebrum illic fuisse, unde promanarit 'Manetoe' dici malum genium docent itineraria.) I have seen elsewhere grave speculations on a connection between Manitou and Menes, Menu, Minos, Mannus, Manes, &c.

A contemporary of these learned divines just named—and himself a learned divine—was Dr. Chalmers, who lived from 1780 to 1847. I introduce here a sentence or two from a letter of his now lying before me, addressed to the late Bishop of Toronto, Dr. Strachan. He says: "We were all much pleased with your son; he seems cast in the very mould of his profession, having all the chivalry and gallant spirit of a thorough soldier. * * But what pleased me most was the evident affection and feeling wherewith he spoke of yourself, and of his purpose to visit St. Andrews and Professor Duncan, because of your connection with them." Dr. Chalmers' handwriting is execrable. I possess also a brief note of Edward Irving, addressed to Dr. Strachan.

I produce a volume which was once the property of Bishop Wilson, of Calcutta. It was presented by him to the Rev. C. Winstanley, who was for some years a resident of Toronto. It shows the following Latin inscription in the Bishop's handwriting: "Carolo Winstanley, in amicitiæ gratique animi pignus, D.D. Danielus Wilson, 1812." The work itself is Luther's Commentary on the Second Psalm, in Latin, edited by Johannes Jacobus Rambachius, and printed at Halle in 1728. I observe that Rambach, in his Preface, contends for the scholarship of Luther: "Teste Philippo Melancthone," he says, "Ciceronem, Virgilium, Livium aliosque latinitatis antistites, legendo sibi familiarissimos reddiderat. Quod verò historicos insuper Græcos et Latinos, quod Platonem, Aristotelem, aliosque prisci ævi philosophos exploratos habuerit; id verô frequentiores sententiæ, quas ex illis decerptas scriptis suis passim inspergit, abundè testantur." Luther especially liked the ancient poets, Rambach says, and Virgil was selected to be his one companion when he retired into the monastery of Erdfort. "Imprimis poëtas, stili politioris magistros, in deliciis habuit, interque eos maximè Virgilium, quem, quum relictis libris omnibus in monasterium Erfordiæ se abderet, solum secum retinuit, ac postea sæpius non laudavit solum aliisque commendavit,

sed ipse etiam in operibus suis passim allegavit."—Mr. Winstanley, to whom Bishop Wilson presented this book, used humorously to speak of himself as one of the *spare* clergy of Toronto, alluding to his own great corpulency. He was a good, acceptable preacher. Prior to engaging to deliver a sermon anywhere, he used to ascertain the capacity of the pulpit and the width of its door, for which purpose he had a notch marked on his cane. I remember him, after preaching a charity-sermon, handing to the churchwarden what he called "a note to his discourse;" it was a bank-bill; and this, I think, was a customary pleasantry with him.

I have now to show a brief note from the hand of the famous Sydney Smith, canon of St. Paul's. Its contents are quite of a grave character, relating to matters of business connected with his parish of Combe Florey, in Somersetshire. I have quoted already from Sydney Smith's article in the *Edinburgh*, on Dr. Parr—a memorable paper, which, while rendering all honour and justice to the profoundly learned scholar of Hatton, contrived to make of his wig a joke, if not a joy, for ever, to the English public. "With a boundless rotundity of frizz, like Dr. Parr's wig," has become one of the established phrases of the language. The note in my possession is addressed to Mr. Jacobs, at Taunton, the post-town of Combe Florey, who appears to have been Sydney Smith's business agent. "Sir," the Canon says, "I have before written to you on the subject of Tithes. I have only to add that you will be so good as to ask them individually for the money, and to give a *gentle hint*, if necessary, that after so much indulgence, those not paying will be immediately proceeded against. I will not have any Tithe Dinner or Luncheon. Yours truly, SYDNEY SMITH.—56 Green Street, Grosvenor Square, March 20, 1835." The value of Combe Florey is set down in the books as £263 per annum. But the nominal value of livings in England is greatly above their real value to the incumbents. Numerous expenses which with us are borne, naturally enough, by the congregation, are in England expected to be met by the clergyman. Sydney Smith's £263 was, as we can see from the note, likely by no means to come up to the mark, by reason of the appeals *ad miserecordiam;* then, after that, the agent must be paid for collecting; the curate must be paid, and the parish schoolmaster, and a number of other claimants. Thus the net income from Combe Florey would not be large.—The seal on Sydney Smith's note shows a dog watching; above is the sun; but a cloud floats between it and the faithful creature below: inscribed is the motto,

"Present or absent."—Some remarks of Lord Houghton, in one of his recently published "Monographs, Personal and Social," will help to an understanding of Sydney Smith, and remove some prejudices in relation to him. At the beginning of the present century, a man of humorous temperament in the pulpit or desk, was by no means held to be out of place. "It needs no argument," Lord Houghton says, "to prove that susceptibilities on the score of irreverence increase in proportion to the prevalence of doubt and scepticism. When essential facts cease to be incontrovertible, they are no longer safe from the humour of contrasts and analogies. It is thus that the secular use of Scripture allusion was more frequent in the days of simple belief in inspiration, than in our times of linguistic and historical criticism. Phrases and figures were then taken as freely out of sacred as out of classical literature; and even characters as gross and ludicrous as some of Fielding's clergy were not looked upon as satire against the Church." The question may fairly be asked, Lord Houghton thinks, "Why should Sydney Smith not have made quite as good a bishop as he was a parish priest and canon of St. Paul's. The temperament which, in his own words, made him always live in the Present and the Future, and look at the Past as so much dirty linen, was eminently favourable to his fit understanding and full accomplishment of whatever work he had to do. There has been no word of adverse criticism," Lord Houghton says, "on his parochial administration, and he has left the best recollections of the diligence and scrupulous care with which he fulfilled the duties in connection with the Cathedral of St. Paul's."

I have myself a personal recollection of Sydney Smith, associated with St. Paul's. I there once heard him deliver a most touching and useful discourse on the Fifth Commandment, and I was pleased some years afterwards, to find it printed in a volume of his published sermons. I am thus able to give some of the words of great truth and soberness which it fell to my lot to hear Sydney Smith utter. "There are little sacrifices" he said, "of daily occurrence, which in a series of years, contribute as materially to the happiness of a parent, and which, because they are obscure, and have no swelling sentiments to support them, are more difficult for a continuation than more splendid actions. Every man has little infirmities of temper and disposition which require forgiveness; peculiarities which should be managed; prejudices which should be avoided; innocent habits which should be indulged; fixed opinions which should be treated with respect;

particular feelings and delicacies which should be consulted: all this may be done without the slightest violation of truth, or the most trifling infringement of religion; these are the sacrifices which repay a man in the decline of life, for all that he has sacrificed in the commencement of yours; this makes a parent delight in his children, and repose on them, when his mind and his body are perishing away, and he is hastening on to the end of all things." "Consider," he continued, "that he has been used to govern you; that (however you may have forgotten it) the remembrance is fresh to him, of that hour when you stood before him as a child, and he was to you as a God. Bear with him in his old age; pain and sickness have made him what you see: he has been galled by the injustice perhaps, and stung by the ingratitude of men; let him not see that old age is coming upon him, that his temper is impaired, or that his wisdom is diminished; but, as the infirmities of life double upon him, double you your kindness; make him respectable to himself, soothe him, comfort him, honour your father and your mother, that your days may be long, that you may be justified by your own heart, and honoured by the children which God giveth to you." Again, afterwards, he said: "It should be a great incitement to the performance of this duty, that when the time comes for repenting that we have neglected it, when the little personal feuds and jealousies which blind our understanding, are at an end, and it becomes plain to the judge within the breast, that we have often neglected the authors of our being, often given them unnecessary pain;—when these feelings rush upon us, it too often happens that all reparation is impossible: they are gone; the grave hides them; and all that remains of father and mother are the dust and ashes of their tombs. In all other injuries, the chances of repairing them may endure as long as life itself, but it is the ordinary course of nature, that the parent should perish before the child; and it is the ordinary course of nature also, that repentance should be most bitter when it is the most ineffectual."

A visit to St. Paul's Cathedral in London, was rendered additionally interesting down to so late a period as 1868, by yielding an opportunity of seeing, and perhaps hearing the voice of, the distinguished Henry Hart Milman, the variously accomplished dean of that Cathedral, author of the History of Latin Christianity, a narrative almost as absorbing and as well sustained as Gibbon's. Dean Milman was always ready to be courteously obliging to Canadians and Americans generally, in their visits to London and St. Paul's. My MS. relic of

this excellent man, whom life extended from 1791 to 1868 is a brief note, in keeping with his clerical character, but unimportant except as an autograph. It is as follows: "Cloisters, Saturday. Dear Lady Williams.—The Confirmation is at half-past eleven; the Candidates are to be in the Church by eleven. Ever truly yours, H. H. MILMAN. Did you see the note in my last enclosure?" I add here a sentence or two from the hand of another dean, the late Dean Ramsay of Edinburgh, author of "Reminiscences of Scottish Life and Character." "Illness and being in my own room must be my apology," he says, "for delay in the reply to your favor of Jan. 23. 1. Garscadden was the name of the laird who sate a "corpse twa hours" at the festive board. (see. Rem. p. 66. ed. 13.) I had the story from the late Prof. Aytoun, who was very correct in all such matters. I found afterwards it was referred to in Dr. Strong's history of Glasgow Clubs. 2. There is another place (in Fife, I believe,) Garnstadden Colquhoun. Garscadden is six miles from Glasgow, at New or East Kilpatrick. The old drinking laird's probably passed away. 3. All places beginning with 'Gar,' are, I believe, from the Celtic 'caer,' which means fortress. The addition represents some quality of the fortress: for example, Gargunnoch, *i.e.* Celtic Caer-guineach, a pointed fortress. But I am not a Celtic nor Antiquarian scholar. I hope you will excuse this imperfect answer, and accept the consideration of yours sincerely, E. B. RAMSAY."

I value very highly the autograph manuscript which I produce now. It is a note in the handwriting of the first Duke of Wellington. Very often the notes of the great Duke which collectors show, are somewhat grotesqué in character: "F. M. the Duke of Wellington is one of the few persons in this country who don't meddle with things with which they have no concern." "F. M. the Duke of Wellington can give no opinion upon that of which he knows nothing." "F. M. the Duke of Wellington presents his compliments to Mr. ——, and would advise him to ask the local papers themselves on what authority they make such a statement as that to which Mr. —— alludes." "F. M. the Duke of Wellington presents his compliments to Mr. H. He has also received Mr. H.'s letter, and begs leave to inform him he is not the historian of the wars of the French Republic in Syria." The query was put to him in the letter referred to—"Did Napoleon poison the prisoners at Jaffa?" "F. M. the Duke of Wellington presents his compliments to Mr. ——. His letter of the 28th instant has been received by the duke, but not the petition

therein referred to. If it should ever reach the duke he will return it to Mr. ——. The duke has no relation with Bridgewater; he has no knowledge upon the subject to which he understands the petition relates, either as affecting the local interests of Bridgewater or the interests of the public in general. He begs leave to decline to constitute himself, or to be made by others, the presenter-general to the House of Lords of all petitions which no other lord will present." The request had been to present a petition from Bridgewater.

The note which I possess is not in the strain of either of these. It is addressed in a frank and cordial tone to Sir Robert Peel, and it relates to public business: it is dated too from Walmer Castle, the place which became invested, some twenty years later, with increased interest as being the scene of the duke's death. "Walmer Castle, August 20th, 1829. My Dear Peel,—Upon Lord Ellenborough's suggestion, I obtained the King's consent at Windsor, on Monday last, to Lt. Colonel John MacDonald, of the East India Company's Service, of the establishment of Fort St. George, Envoy Extraordinary from the Supreme Government of India to his Majesty the Shah of Persia, to be Knight of the Bath; to Commander John Hayes, of the E. I. Company's Marine; to Lt. Colonel Commandant Robert Henry Cunliffe, of the E. I. Company's Service, of the establishment of Fort William, in Bengal; to Lt. Colonel Jeremiah Bryant, of the E. I. Company's Service, of the establishment of Fort William, in Bengal, to be created Knights by Patent. Ever, my dear Peel, yours most sincerely. WELLINGTON. The Cross of the Bath intended is the small Cross." Here was a concise yet full and minute memorandum for Sir Robert Peel's information. In what momentous affairs was the hand once engaged which traced the lines we have transcribed. With what a variety of sensations was that hand grasped, and by what a multitude of personages—in India, in Spain, in Portugal, in France, in England, in Ireland! Well has Tennyson spoken of the Duke of Wellington as one—

> "Whose life was work, whose language, rife
> With rugged maxims hewn from life;
> Who never spoke against a foe;
> Whose eighty winters freeze in one rebuke
> All great self-seekers trampling on the right:
> Truth-teller was our English Alfred named;
> Truth-lover was our English duke;
> Whatever record leap to light,
> He never shall be shamed."

ON A REMARKABLE FRAGMENT OF SILICIFIED WOOD FROM THE ROCKY MOUNTAINS.

BY H. ALLEYNE NICHOLSON, M.D., D.Sc., F.R.S.E.,
Professor of Biology in the College of Physical Science, Newcastle-on-Tyne; and
W. H. ELLIS, M.A., M.B.,
Lecturer on Chemistry in the School of Practical Science, Toronto.

The specimen which forms the subject of the present communication was brought by the late Mr. John Worthington, of Toronto, from the well-known "petrified forest" of Colorado. As to the locality from which the specimen was derived, we can, of course, merely speak at second-hand; but the petrified forest in question is a place familiar to, and much visited by, tourists; and there is both external and internal evidence to prove that the specimen was truly brought from there. The "petrified forest" of Colorado is situated not very far from Colorado City, at a supposed height of about seven thousand feet above the level of the sea, in the immediate neighbourhood of the lofty mountain known as Pike's Peak, and near to the celebrated Ute Pass. The forest occupies the bottom of a broad depression which covers an area of from one to two thousand acres. All round the edge of this area are placed numerous erect stumps of silicified trees, most of which are three or four feet in height, and from ten to twenty feet in diameter. The stumps are apparently placed at some little elevation above the bottom of this depression, and are said for the most part to be placed at about the same level. These phenomena would strongly support the belief that these ancient trees grew upon the margin of a lake which has now disappeared. Various considerations render it probable that these silicified trees are the remains of conifers belonging to the genus *Sequoia*, and nearly allied to, if not identical with, the "giant-trees," *Sequoia gigantea*, of California. The great size of the stumps would render this conclusion almost a certainty, and it is further supported by the fact that a very similar silicified forest has been described by Professor Marsh as occurring near Mount St. Helena, in California (*American Journal of Science and Arts*, Vol. I., April, 1871). From the occurrence of a bed of vesicular lava in direct connection with the forest, we may surmise that the forest was overthrown and buried

by a volcanic eruption, having been previously silicified by means of heated alkaline waters containing silica in solution. This point, however, could only be settled by actual observation on the spot by a competent geologist. As to the age of the silicified forest of Colorado, we are in possession of no data whereby a positive opinion might be arrived at. At the present day the great Sequoias are not found east of the Rocky Mountains, though there is ample evidence of their having at a former period enjoyed a much wider extension in space. We may conclude, therefore, with much probability, that the forest is of Post-Tertiary age, probably Post-Pliocene.

The specimen which forms the immediate object of the present communication is alleged by its discoverer to be one of many similar specimens which were found upon the surface of the ground surrounding the stump of one of these silicified trees; and it demands consideration from three points of view: 1, as regards its microscopic structure; 2, as regards its chemical constitution; and 3, as regards its form.

1. As regards the intimate structure of the specimen, we have carefully examined thin sections, ground down on a hone, and soaked either in water or Canada Balsam. These sections show in the clearest and most unmistakable manner the structure of fossil wood, exhibiting woody fibres and medullary rays, and closely resembling some of the specimens figured in Goeppert's "Monograph of the Fossil Coniferae." We were for some time unable to determine the existence of discs upon any of the ligneous vessels. The examination, however, of a section which had been soaked for a long time in Canada Balsam, revealed the presence of these discs on some of the vessels.

The structure of the sections is precisely similar to that of similar sections of the fragment of wood broken directly from one of the silicified stumps.

2. As regards its chemical constitution, the wood has been completely fossilized, and the specimen consists essentially of silica. It may be noticed in this connection that the specimen, in spite of its complete mineralization, is remarkably light. A portion yielded to chemical analysis as follows:

Loss on ignition (Water and Organic Matter)	6.24
Silica	85.26
Alumina	5.35
Lime	6.79
Magnesia, Iron	Traces.
	103.64

3. The microscopical and chemical examination of the specimen place beyond a doubt its being truly of the nature of silicified wood, and it only remains to consider its very remarkable form.

The specimen has the form of an irregular rhombohedron, about six inches in greatest length by three inches in greatest width; and we may successively consider its internal, external, superior and inferior surfaces, holding it in such a position that the fibres of the wood have a vertical direction. The internal and external faces of the fragment present little of importance. Both, of course, are parallel with the fibres of the wood, and the only means of determining with certainty which is internal and which external, is to be found in the very slight, indeed hardly noticeable, curvature of the woody layers. Judging from these, the side towards which the convexity of the layers is turned, and which is therefore external, is much the smaller, owing to the fact that the superior and inferior faces of the fragment are directed away from one another. There are no signs of the existence of the bark upon this face. The internal face is much more extensive than the external (for the reason noticed above), and is considerably discoloured and blackened, probably because the fragment must have rested with this side in contact with the ground.

The upper and lower surfaces of the fragment are both directed *across* the fibres of the wood, and, as before intimated, are directed away from one another. The upper surface is upon the whole of a curved form, with the concavity of the curve directed upwards; but the regularity of the curve is interrupted by a step or ledge, which runs in the long axis of this face, parallel with the concentric rings

of the wood. The lower surface of the fragment offers an almost clean face, directed obliquely downwards across the fibres of the wood. This face, though approximately plane, presents a succession of inequalities, in the form of slight steps or ledges, which run parallel with the successive concentric rings of the wood. These ledges cross the lower face from side to side, and are slightly deeper on that margin of this surface, which appears to have been directed towards the interior of the tree.

When we look at this fragment of wood as a whole, and endeavour to assign a probable cause for its very remarkable shape, it is difficult to avoid the conclusion that we have to deal here with a veritable fossil chip, cut from one of these ancient trees before silicification took place, and probably whilst the tree was in an erect position. At first sight this may appear a very bold conclusion to arrive at, but it will be shown that this hypothesis will explain all the peculiar appearances presented by the fragment, whilst these appearances cannot be accounted for by any other conjecture which would have any likelihood in its favour. In the first place, the upper and lower surfaces of the fragment are directed *across* the fibres of the wood, and have, both of them, the character of clean-cut surfaces—the one curved, the other approximately flat. It is easy, of course, to find specimens of various fibrous minerals, or even of certain rocks, which assume a somewhat similar shape owing to the action of jointing. Jointing, however, so far as we are aware, could not possibly be induced in the erect trunks of silicified trees, which have not been buried beneath the surface of the earth, nor have been exposed to any of those agencies by which joints are usually believed to be produced. In the absence of jointing as a possible agency, we are compelled to conclude that the upper and lower surfaces of the fragment have been produced artificially, by some external force; and we are obliged to believe that the force producing them must have acted upon the wood at a time prior to its silicification. We know of no agent capable of producing similar surfaces in wood save man with the aid of tools; for animals, such as the beaver, which gnaw wood, produce appearances of a totally different description.

In the second place, the general appearance of the fragment is precisely that of an ordinary chip cut with an axe from any soft-wood tree. It might be exactly paralleled by dozens of examples which might be picked up in any locality where trees are being felled on an extensive scale. Indeed, it so closely resembles an ordinary chip that

it would almost infallibly be picked up as such if found lying in a forest; and it was at once recognised as such both by its original discoverer and the various skilled backwoodsmen and lumberers to whom we have shown it.

In the third place, some of the appearances presented by the fragment, which at first sight appeared to us to militate against its being an artificial chip, turn out, upon closer examination, to constitute additional proofs that this is its real nature. Thus, the upper surface of the fragment, though directed, as a whole, almost at right angles to the fibres of the wood, is not plane, but is curved, with the concavity of the curve directed upwards. This appearance would seem difficult to reconcile with the hypothesis that the surface had been produced by one or more blows with a sharp instrument. In point of fact, however, this is an appearance which is quite commonly produced in chips, owing to the axe being blunt or not held with a very firm grasp. When this is the case, the edge of the axe is exceedingly apt to turn, and thus a curved instead of a plane surface is produced. Again, the lower surface forms a plane directed obliquely to the fibres of the wood, and interrupted by numerous ledges or steps corresponding with and parallel to the successive concentric layers. These layers we were at first disposed to consider as due to changes taking place after the fragment had actually been produced; for in the ordinary way a freshly-cut chip does not exhibit similar ledges crossing the cut surfaces. An examination of several hundred recent chips, in all stages of desiccation, showed us, however, that no inequalities of surface at all comparable to this are produced by contraction or expansion of the fibres of the wood on drying. The only similar appearance produced by changes taking place after the chip has been cut is what is sometimes seen in old pine-chips where minute parallel ridges are sometimes formed by a kind of weathering, owing to the inside of each annual layer of growth being slightly softer than the outside. We found, however, that a surface precisely similar to that seen in the specimen, with precisely similar ledges and inequalities, is produced when the chip is cut *with a blunt axe*—owing to the fact that the successive concentric layers of the wood differ in hardness, and the axe makes a succession of slips in cutting through them. Similar, though not such pronounced, inequalities are occasionally produced when the chip has been cut by a succession of blows. This action is further assisted by the wedge-like form of the axe-head, which both promotes the slipping of the edge of the axe, and necessarily exercises

a bruising and crushing action upon the fibres of the wood, this action being obviously most intense near the periphery of the trunk.

From a consideration, therefore, of all the facts of the case, we have arrived at the conclusion that the specimen in question is a chip artificially cut by man from the tree prior to silicification. The grounds which justify this conclusion may be summed up as follows: 1. The specimen is a fragment of silicified wood, exhibiting definite and clean surfaces cutting across the fibres of the wood. If these surfaces were not artificially produced by some edge-tool, the agency by which they were formed has yet to be pointed out. 2. The general form of the fragment is precisely that of a chip cut by an axe. 3. The upper of the two supposed cut surfaces is curved in the same way as is often seen in modern chips when the axe has been blunt or has been loosely held in the hand. 4. The lower surface (and less conspicuously the upper surface also) exhibits numerous successive ledges or steps, such as can commonly be observed in modern chips when the axe used has been blunt, and which are due to the fact that the edge of the axe has made a succession of slips in passing through the different concentric layers of the wood.

The chief objection which may be urged against this view of the nature of this singular specimen is, that the surfaces of incision which it exhibits are too clean and regular to have been made by anything except a metal axe. It is to be remembered, however, that the wood is obviously soft; and that, in the second place, the pre-historic races of North America were in possession of copper axes made from the native copper of the Lake Superior region at a very early period.

As to the age of the specimen, we can offer no positive opinion. It is possible that the specimen is much more modern than the silicified forest in which it was found; but we have been led to reject this idea on the ground of its complete identity in microscopic structure and chemical composition with the silicified trunks amongst which it is found, and also on account of its very high degree of mineralization. No hot springs occur at the present day in the neighbourhood of the silicified forest where the specimen was discovered, and similar petrified forests have been found in California partially imbedded in stratified deposits of late Tertiary age. If our conclusions, therefore, are correct, the specimen would lead us back to a time when the giant Sequoias of the Sierra Nevada extended far to the east of the Rocky Mountains; but we have no data for fixing even approximately the antiquity thus indicated.

NOTES ON MECHANICS.

BY JAMES LOUDON, M.A.,
Mathematical Tutor and Dean, University College, Toronto.

1. To find the resultant of two parallel forces.

Let AB, CD be the given forces acting in the same direction. Produce BA to E, making AE equal to AB. Join AC, ED meeting in F; on CA take CG equal to AF; and complete the figure by drawing GHK parallel to AB or CD, and AH, BK parallel to ED. Then on introducing the two equal and opposite forces AF, CG, the forces AB, CD will be equivalent to AB, AF, CD, CG. Of these the former two are evidently equivalent to HK, HD; and the latter to GH, DH. Hence the resultant is GK or $AB + CD$; and its line of action a line through G parallel to AB or CD.

A point in the line of action of the resultant can also be found by drawing the lines $ALND$, $BLMC$; then if $CM = BL$, $DN = AL$, either M or N is the point in question.

By reversing BAE we have the case where the forces act in opposite directions. In this case ($AB < CD$), CA, DE meet in F; CG is taken, in FAC produced, equal to AF; GKH is drawn parallel to CD, and BK, AH parallel to FED. Then the resultant is $GK = CD - AB$.

2. In the figure of (1) since the parallelogram $HC = DA = HE$, it follows that $AB.p = CD.q$, where p and q are the respective distances between the resultant and AB, CD.

From this relation it easily follows that the moment of the resultant about any point O in the plane of the forces is equal to the sum of the moments of AB, CD.

3. To prove that the moment of the resultant of forces acting at a point is equal to the sum of the moments of its components around any line.

Let OO_1 be any line, AD_1 one of the component forces, AOO_1 being the plane of the paper and AO perpendicular to OO_1. Through A draw AB_1 parallel to OO_1 and let B_1 and O_1 be the points where a plane through D_1 meets AB_1, OO_1, respectively. Drop a perpendicular O_1F_1 ($=p_1$) on D_1B_1, and let $d = O_1B_1 = O_2B_2 = \ldots$.

Resolve AD_1 into AB_1, B_1C_1 in the plane of the paper, and C_1D_1 perpendicular to the plane of the paper. Resolve the other

components AD_2, &c., of the resultant AD and the resultant in like manner. Then, taking the components perpendicular to the plane of the paper, we have

$$CD = C_1D_1 + C_2D_2 + \ldots.$$
$$\therefore \quad CD \,.\, d = C_1D_1 \,.\, d + C_2D_2 \,.\, d + \ldots.$$
$$\text{But} \quad C_1D_1 \,.\, d = B_1D_1 \,.\, p_1, \text{ \&c.} = \text{\&c.}$$
$$\therefore \quad BD \,.\, p = B_1D_1 \,.\, p_1 + B_2D_2 \,.\, p_2 + \ldots.$$

But $BD.\,p$ is the moment of AD around OO_1. Therefore, &c.

4. The sum of the moments of two parallel forces is equal to the moment of their resultant around any line.

Let OX be the given line, and $OACB$ its projection on the plane of the forces; let the given forces P and Q and their resultant R act at A, B, C, respectively.

Resolve the forces P, ... into P_1, P_2, ... parallel and perpendicular, respectively, to OX in the plane AOX, and P_3, ... perpendicular to AOX. Then, if P_4, ... denote the resultant of P_2, P_3, ...; a, b, c, p, q, r, the distances of A, B, C, P_4, Q_4, R_4, respectively, from OX, we have

$$P \,.\, OA + Q \,.\, OB = R \,.\, OC.$$
$$P_3 \,.\, OA + Q_3 \,.\, OB = R_3 \,.\, OC.$$
$$P_3 \,.\, a + Q_3 \,.\, b = R_3 \,.\, c.$$
$$P_4 \,.\, p + Q_4 \,.\, q = R_4 \,.\, r.$$

But $P_4 \,.\, p$ is the moment of P around OX. Therefore, &c.

5. The centre of parallel forces.

Let OF be any line, and A_1B_1, A_2B_2, ... the forces whose resultant AB is their sum; and let A_1F_1, A_2F_2, ... be the distances of the points where the forces act from OF. Drop FE perpendicular to AD.

Resolve AB into AD, DB along and perpendicular to OF, respectively. Then, taking moments around OF,

$$AD \,.\, FE = A_1D_1 \,.\, F_1E_1 + \ldots.$$
$$\text{But} \quad AD : A_1D_1 : A_2D_2 \ldots. = AB : A_1B_1 : A_2B_2 \ldots.$$
$$\text{and} \quad FE : F_1E_1 : F_2E_2 \ldots. = AF : A_1F_1 : A_2F_2 \ldots.$$
$$\therefore \quad AB \,.\, AF = A_1B_1 \,.\, A_1F_1 + \ldots.$$
$$\therefore \quad AF = \frac{A_1B_1 \,.\, A_1F_1 + \ldots.}{AB}$$

which is independent of the direction of the forces. Therefore, &c.

NOVEMBER, 1873.

NITRO-GLYCERINE:

ITS HISTORY, MANUFACTURE, AND INDUSTRIAL APPLICATION.

BY W. H. ELLIS, M. A., M. B.,
Lecturer on Chemistry at Trinity College, Toronto.

The discovery of nitro-glycerine dates from the year 1847. On the 15th of February of that year, a letter was read before the French Academy from M. Ascagne Sobrero,* in which he stated that he had obtained from glycerine a substitution product analogous to gun cotton. By adding glycerine to a mixture of two volumes of sulphuric acid with one volume of nitric acid, kept carefully cool, and pouring the resulting mixture into water, he obtained a pale yellow heavy oily body, insoluble in water, but soluble in alcohol and ether, of a pungent and aromatic taste, but without smell. Although Sobrero must have been acquainted with the explosive properties of the new compound, no allusion is made to them in this communication, but he states that as much as can be taken up by dipping lightly in it the point of the little finger will, if placed on the tongue, produce severe headache for several hours.

M. Sobrero announced his intention of making an analysis of the compound, but he does not appear to have done so, and it was not till 1854 that its composition was accurately determined. In that year Mr. Railton† succeeded in effecting the combustion of nitro-glycerine with copper oxide and metallic copper. He found that caustic potash absorbed two-thirds of the volume of the gas that was evolved, and hence he concluded that the ratio of carbonic acid to nitrogen in the products of combustion was 2 volumes to 1 volume, which would correspond to one moleclue of $C\,O_2$ and one atom of N, and since a molecule of $C\,O_2$ contains one atom of C, it follows that nitro-glycerine contains an equal number of atoms of C and N, and since a molecule of nitro-glycerine contains 3 atoms of C, a molecule of nitro-glycerine

* Comptes Rend., 15th February, 1847.
† Q. J. Chem. Soc., 30th March, 1854.

must contain 3 atoms of N, or, if glycerine be represented by the formula:

$$\left.\begin{matrix} C_3\ H_5 \\ H_3 \end{matrix}\right\} O_3$$

nitro-glycerine would be:

$$\left.\begin{matrix} C_3\ H_5 \\ (N\,O_2)_3 \end{matrix}\right\} O_3$$

He also shewed that nitro-glycerine, when boiled with potassium hydrate, was decomposed into potassium nitrate and glycerine:

$$\left.\begin{matrix} C_3\,H_5 \\ 3\,N\,O_2 \end{matrix}\right\} O_3 + 3 \left.\begin{matrix} K \\ H \end{matrix}\right\} O = \left.\begin{matrix} C_3\,H_5 \\ H_3 \end{matrix}\right\} O + 3 \left.\begin{matrix} N\,O_2 \\ K \end{matrix}\right\} O$$

Nitro-glycerine is a substitution product from glycerine, obtained by the action of a mixture of nitric and sulphuric acids on that substance. It may be described as glycerine in which three of the atoms of hydrogen have been replaced by three molecules of nitric peroxide. It is a colourless oily fluid of a specific gravity of 1.6, and hence more than half as heavy again as water, in which it is quite insoluble. It is made by dissolving glycerine in the mixed acids, and pouring the resulting mixture into water, when the nitro-glycerine separates and collects at the bottom of the vessel. It is necessary to keep the acid mixture cool and to add the glycerine in small portions, cooling after each addition. The product should be well washed with water so as to get rid of the last trace of acid. Nitro-glycerine which has been incompletely freed from acid has a tendency to decompose, giving off red fumes of nitric peroxide, and depositing crystals of oxalic acid (Bloxam). On the application of an ignited substance it burns quietly away without noise, and with a greenish flame. If a drop of it is laid on an anvil and struck smartly with a hammer, it explodes violently with a report like that of a pistol. The conditions under which this explosion takes place are of great importance, and have been carefully studied. All observers agree that contact with an ignited body will not explode nitro-glycerine—under these conditions it merely burns away quietly. Abel* conducted a series of investigations on the action of a succession of electric sparks on nitro-glycerine, and he found that in no case was he able to explode it by such means, until, after the discharge had been continued for a considerable period, the liquid became dark-coloured from incipient decomposition. Shortly after this point was reached, explosion took place. When a

* Philosophical Trans., 15th April, 1869.

platinum wire heated by electricity was substituted for the spark discharge, the same results were observed. From these experiments he concluded that it is impossible to explode nitro-glycerine by contact with a source of heat until the intensity or duration of the heat brings about decomposition of some portion of the nitro-glycerine, which in its turn, determines the explosion of the rest. For this effect, it is necessary that the heat should not only be intense, but also long continued. I have never succeeded in exploding nitro-glycerine by contact with a red hot wire—under these circumstances, indeed, it usually refuses even to take fire, and the wire cools before the nitro-glycerine has attained the temperature required for ignition. When the temperature of the wire is maintained at a high point by electricity, as in Abel's experiments, time is allowed for the nitro-glycerine to reach its point of ignition, and hence the result which he observed. When heated to 100° C, or a little less, it slowly evaporates. Abel kept it for four days at this temperature, confined in a sealed glass tube, without its exploding.

Leygue and Champion have shewn that nitro-glycerine is ignited when its temperature is raised to 257° C. They conducted their investigation by means of a bar of copper, to one end of which heat was applied, and upon the other end of which the nitro-glycerine was placed. The bar was grooved, and in the groove fusible metallic alloys were placed, by means of which the exact temperature of the bar, at any particular point, could be ascertained.

When nitro-glycerine is heated in a dish of copper or platinum over a lamp, it gives off dense white fumes, and is soon completely dissipated, but gradually, and without noise or violence. Under certain circumstances, however, it may, when treated in this way, explode with great violence. A student in the laboratory of M. Gorup Besanez * was heating ten drops of nitro-glycerine in an iron saucepan over a Bunsen burner, when it exploded. Every pane of glass in the laboratory (46) was smashed; the saucepan was hurled through a brick wall; the iron retort stand that supported the saucepan was split and twisted, and the Bunsen burner was split and flattened in a remarkable manner. Most fortunately there was nobody hurt.

Nitro-glycerine is, as we have seen, easily exploded if laid on an iron anvil and struck with a hammer. If a drop be placed on a

* Am. des Chem. & Pharm., March, 1871.

piece of filter paper, and the paper struck with a hammer on an anvil, it will be shattered to pieces, the explosion being accompanied by a bright flash and a loud report. If the nitro-glycerine is laid on a stone and struck with a hammer, it is only exploded with great difficulty. I have never succeeded in exploding nitro-glycerine by contact between iron and wood, either when the nitro-glycerine is laid directly on the wood, or when it is placed on a piece of paper. The experiments of MM. Girard, Millot and Vogt* show that nitro-glycerine is exploded by a weight of 4 kils., 700 falling upon a space of 2 square centimetres on an anvil, from a height of 0.25 metre, which is very nearly equivalent to a weight of 10 lbs. falling from a height of 10 inches.

It is observed by Berthelot† that the impact of such a weight falling through such a distance, would only raise the temperature of a mass of nitro-glycerine a fraction of a degree, if equally distributed, but the conversion of motion into heat being too rapid to allow this distribution to take place before a small portion is heated to its exploding point, a large quantity of gas is suddenly produced, and a second and more violent shock is dealt to the adjacent particles. The force so developed is also converted into heat, and, in this way, a continuous succession of changes is established through the whole mass.

If a small tube of thin metal charged with a few grains of fulminate of mercury be fired by electricity or by a fuse while in contact with a portion of nitro-glycerine, the latter is exploded with great violence. A small confined charge of gunpowder may be substituted for the fulminate. This most important discovery we owe to a Swedish Engineer, Mr. A. Nobel. Mr. E. O. Brown subsequently discovered that gun cotton might be exploded in the same way, and Abel ‡ shewed that it might be applied successfully to many other explosives. Nobel attributed this remarkable result simply to the heat evolved by the explosion of the fulminate, but Abel § shewed that this could not be the case, since the power that different bodies possess of inducing this sympathetic explosion is in no way proportional to the heat evolved in their combustion. He found that different substances differed greatly in their power of inducing the

* Moniteur Scientifique, xiii, 58–60; Q. J. Chem. Soc., ix, 770.
† Comptes Rend., lxxii, 759; Q. J. Chem. Soc., ix, 644.
‡ Phil. Trans., 15th April, 1869. § Loc. Cit.

explosion of a particular body by their detonation, and he suggests in explanation that "as a particular musical vibration will establish synchronous vibrations in particular bodies while it will not effect others, and as a chemical change may be wrought in a body by its interception of only particular waves of light, so, certain explosions may exert a disturbing influence over the chemical equilibrium of certain bodies, resulting in their sudden disintegration, which other kinds of explosions, though developing greater mechanical force, are powerless to exercise."

Quite recently, M. L. L'Hote * investigated the gaseous products of the explosion of nitro-glycerine. For this purpose he introduced into Guy Lussac's eudiometer ten cubic centimetres of detonating gas from the voltameter, and about six centigrammes of nitro-glycerine. He anticipated that on firing the gaseous mixture, its detonation would explode the nitro-glycerine. His expectations proved to be well founded. On passing an electric spark through the gases, the nitro-glycerine did explode, and reduced the eudiometer to powder. M. L'Hote then repeated his experiment in one of Mitscherlich's eudiometers, with ten cubic centimetres of detonating gas, and from five to six milligrammes of nitro-glycerine enclosed in little beads of glass. With these quantities the eudiometer was able to stand the shock of the explosion, and M. L'Hote was able to examine the resulting gases. A number of experiments gave the following as the composition of the gaseous products of the explosion of nitro-glycerine, calculated for one gramme and reduced to 0° C and 760^{mm} barometer.

One gramme of nitro-glycerine yields 284^{cc} gas, consisting of

CO_2	45.72 %
NO	20.36
N	33.92
	100.00

The force with which nitro-glycerine explodes is very great. The explosive force of any compound depends upon two things, the volume of gas produced and the quantity of heat disengaged. The product of these two factors may be taken as a measure of the explosive force. M. Berthelot† has compared a number of explosives with regard to these two points, and has shewn that the explosive

* Comptes Rend., lxxiii, 1013. † Moniteur Scientifique, xiii, 40.

force of nitro-glycerine is much greater than that of any of the others. The following is his table:

	Quantity of heat evolved by one kilo. in units.	Volume of Gas found in M. C.	Product of these two Numbers.
Sporting powder	644000	0.216	139000
Military "	622500	0.225	140000
Blasting "	380000	0.355	135000
Powder with excess of C	429000	0.516	219000
" " sodium nitrate	769000	0.252	194000
" " potassium chlorate...	972000	0.318	309000
Chloride of nitrogen	316000	0.370	117000
Nitro-glycerine	1282000	0.710	910000
Gun Cotton.....	700000	0.801	560000
" " with nitre	1018000	0.484	492000
" " $K\,Cl\,O_3$	1446000	0.484	700000
Potassium picrate	872000	0.585	510000
Picrate with nitre	957000	0.337	323000
" " $K\,Cl\,O_3$	1405000	0.337	474000

From this table it appears that the explosive force of nitro-glycerine is 910,000, while that of blasting powder is 135,000, and that of gun cotton 560,000. Hence we may say that nitro-glycerine explodes with rather more than six times the force of ordinary blasting powder, and not quite twice the force of an equal weight of gun cotton. This great explosive force suggested its value as an agent for blasting rocks, &c., but great practical difficulties stood in the way of its adoption. In addition to the great danger attendant on its manufacture and transport, the fact that it would neither explode by contact with flame nor by the electric spark, for a long time prevented its employment in the arts. At last, in 1864, these difficulties were overcome by Mr. A. Nobel. In his first experiments he used gunpowder soaked in nitro-glycerine, but his discovery before alluded to, that nitro-glycerine may be exploded by the detonation of a small quantity of some other explosive, such as fulminate of mercury, was the means of converting this powerful explosive into an industrial agent of the highest value. It came to be extensively used on the continent of Europe in mining and other blasting operations, and it has also been largely and successfully used in the United States.

As examples of its employment, the boring of the Hoosac Tunnel and the removal of the obstructions at Hell Gate may be mentioned. At one blast in the Hoosac Tunnel the rock was blown out in the centre to a depth of eight feet ten inches. For blasting purposes the

nitro-glycerine was enclosed in tin cases from eight to fifteen inches long and about an inch in diameter, and holding from four to eight ounces of nitro-glycerine. The nitro-glycerine was generally exploded by a small confined charge of gunpowder.

The use of nitro-glycerine is attended with great danger, and a number of melancholy accidents followed its introduction into the arts. Some of these accidents will be alluded to subsequently. In consequence of this danger, and of the inconvenience of the liquid form of the compound, owing to which it could not be used in any but downward bore holes, various attempts were made to obtain a compound of which nitro-glycerine should be the base, but which should have a solid form. These attempts resulted in the introduction by Mr. Nobel of dynamite, which consists of a siliceous earth called *Kieselguhr*, impregnated with nitro-glycerine. This Kieselguhr is a siliceous earth found in large quantities only in one place —near Luneburg in North Germany. It consists chiefly of silica, although there are traces of alumina, ferric oxide and lime. It is a deposit consisting of the remains of the shells of by-gone generations of infusoria. It is of a light red colour, and is very absorbent, so that the dynamite may be made up in paper cartridges and kept without appreciable loss; although Girard, Millot and Vogt* have shewn that it loses strength on exposure to the air, and Guyot † has pointed out that paper will absorb nitro-glycerine, and that its absorption by the paper of the cartridges in which it is enclosed, is a possible source of accident. The paper is sometimes soaked in paraffin, which will obviate the danger from this cause.

M. Champion‡ concludes that dynamite is not exploded by a blow; but Girard, Millot and Vogt§ found, by experiments conducted with the apparatus already described, that a mixture of equal parts of nitro-glycerine and silica is exploded easily by a weight of 4 kilos 700, falling through 1.65 metres. Indeed it is easy to explode a small fragment of dynamite by laying it on an anvil, and striking it smartly with a hammer. The contact, however, must be between iron and iron, or rarely, between iron and stone.

There is ample testimony to the value of dynamite in blasting.

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* Comptes Rend., quoted in Am. Chem., i, 79.

† Dingler's Pol. Journ. in Am. Chem., ii, 234.

‡ Monit. Scient., xiii, 91; Q. J. Chem. Soc., ix, 771.

§ Monit. Scient., xiii, 58; Q. J. Chem. Soc., ix, 769.

In vol. 21 of the Scientific American, the results of some experiments in Switzerland by M. Von Arx, are given as follows:

He enclosed $2\frac{1}{2}$ cartridges in a bore 1.11 metres deep and three centimetres diameter. This charge, when exploded, detached $6\frac{1}{2}$ cubic metres of rock. In another experiment, $3\frac{1}{2}$ cartridges, in a bore 1.32 metres deep, loosened 71 cubic metres of rock. M. Champion* has published some experiments on the action of dynamite in breaking up a mass of cast iron weighing 5000 kilos or about five tons. On one side three holes were bored 25^{mm} in diameter and 45 centimetres deep. The central hole received a charge of about 150 grammes of dynamite containing 75 % of nitro-glycerine in two cartridges. Its explosion divided the block into two parts. The explosion of the charges in the two other holes broke these up into many large fragments, and these again by smaller borings were reduced to small pieces. In tamping charges of dynamite a wooden rammer is used, and sand, damp clay, or even water is employed as a tamping.

Dynamite may be used for breaking up boulders by simply laying it on the top of the boulder, covering it with a little moist clay or sand, and firing. In Sweden large boulders are broken up in this manner, and at Rammelsberg in the Hartz Mountains it is used in the same way for breaking up great masses of iron pyrites.

Mr. Berkely, of Newcastle-upon-Tyne, in a paper "On the Practical employment of Dynamite,"† read before the Chemical Society of that town, gives a most remarkable account of some experiments with a large mass of cast iron, which he had tried in vain to break with gunpowder, and the breaking up of which he easily effected with dynamite. He placed 9 oz. of dynamite on a block of iron 2 feet 6 inches across and 18 inches thick, without any hole being bored. The explosion cracked the block in two. The "stythe" from nitro-glycerine is very suffocating, producing fearful headaches. That from dynamite is said not to be so bad.

Dynamite assumes a crystalline condition when exposed to cold, in which it is not so active. The use of dynamite is attended with a considerable saving over that of gunpowder. In the lead mines of Goslar the saving is said by M. Hamel to amount to 17 % money and half the time. In the iron mines at Zeerf, near Saarburg, to 25 % money and half the time; and at the Richlieu mine, near Freiberg, to 30 % money and half the time.

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* Comptes Rend., lxxii, 770; Q. J. Chem. Soc., ix, 772.

† Chem. News xxix, 32.

There have been a great number of substances proposed as a substitute for the kieselguhr, but none seem to answer all purposes quite so well. Dualin consists of sawdust or lignine soaked with nitro-glycerine. It is the invention of Lieut. Ditmar, who brought over 100 lbs. of it to the United States in a carpet bag. It is said, by the way, that the first nitro-glycerine brought to America was carried by a passenger in one of the large ocean steamers, who kept it under his pillow. Some of it was used successfully in the Hoosac Tunnel.

The industrial manufacture of nitro-glycerine is attended with considerable danger, and requires great precautions. The operations are carried on under open circular sheds, covered with roofs of bituminized paper. The floors slope from the centre towards the circumference, and a constant flow of water is kept up to carry away any nitro-glycerine that might otherwise accumulate on them. The mixed acids are placed in cylinders of glass, stoneware or cast iron, immersed in water cooled to 10° C. The nitro-glycerine is introduced by means of a tap, drop by drop, and a constant rotary motion is kept up by means of a current of air. A large tube is connected with the cylinders to carry off vapours and prevent the headaches to which the workmen would otherwise be subject. The proportions recommended by Girard, Millot and Vogt * are one part, by weight, of glycerine, at 30° Baumé, two parts of nitric acid at 48°, and four parts of sulphuric acid at 66°. When all the nitro-glycerine has been added, the mixture is poured into six times its weight of water, and the nitro-glycerine which falls to the bottom is washed twice with water, then with an alkaline solution, and then with water.

In the manufacture of dynamite the dry kieselguhr is put into stoneware vessels, and moistened with nitro-glycerine in the proportion of 25 % of the earth to 75 % of the nitro-glycerine.

The analysis of dynamite may be effected by treating it with ether or with warm alcohol, which dissolves the nitro-glycerine, and the insoluble residue may be thrown on a filter, washed, dried, and weighed. The filtrate is evaporated on a water bath till it ceases to lose weight. The dynamite sold in Toronto gave by this process: Insoluble residue 25.41, nitro-glycerine 74.59. Under the microscope the insoluble residue is seen to consist chiefly of the silicious enve-

* Moniteur Scientifique, xiii, 58.

lopes of diatoms, of sponge spicules, and similar organic remains, but these are mixed with a small proportion of rounded grains of sand.

A great number of terrible accidents have resulted from the explosion of nitro-glycerine. One of the manufactories of dynamite in Europe was twice entirely destroyed. On the last occasion everybody present was blown to atoms. In the United States there have been a great number of accidents. On one occasion, one of the employés of the Wyoming Hotel, N. Y., noticed a small box in the baggage rooms in flames. He picked it up and carried it out into the street, where it exploded, greatly injuring the neighbouring buildings, killing one man and wounding twenty. On the 3rd of April, 1865, an explosion of nitro-glycerine took place in the hold of the steamer *European*, lying at Aspinwall. The steamer, an iron vessel, was blown to pieces, the dock was completely destroyed, and sixty people were killed. This explosion was quickly followed by another at San Francisco, and by another at Sydney, equally horrible. At Morrisiana, U.S., a portion of a nitro-glycerine charge was left unexploded. Subsequent drilling touched it off. Two men were killed and nine severely injured. The dynamite mill at California blew up. The Hackensack nitro-glycerine manufactory, N.Y., exploded, killing four men. There were stored in and around the mill 4,000 lbs. of oil of vitriol, 8,000 or 10,000 lbs. of nitric acid, and 7,000 lbs. of nitro-glycerine. At Englewood, N. Y., a blast failed to explode. The workmen poured water into the hole, and then drilled another close by. An explosion took place and killed four men. Shaffner's factory, at Ridgeville, N. Y., exploded. Two men were killed by a subsequent explosion while removing the débris. On the 13th April, 1870, at the marble quarries at Sing Sing Prison, 4 lbs. of nitro-glycerine were placed in a bore, and over this the powder. The powder exploded without firing the nitro-glycerine, but after the workmen had returned, this also exploded, killing one, mortally wounding another, and injuring two more.

With regard to these accidents, Mr. Nobel, in a letter to the *Times*, shewed that in the great majority of cases the accidents occurred either from a wanton disregard of his printed instructions, or, as in the case of the explosions at Aspinwall and at San Francisco, where nitro-glycerine was transported under a wrong declaration. He gave a list of accidents, the inspection of which shews, in a remarkable manner, the gross carelessness that frequently results from the contempt bred by familiarity with danger.

"In five cases, congealed nitro-glycerine was melted purposely over a fire.

"In three cases, a red hot poker has been inserted into the oil in order to melt it.

"In one case, a man kept a cartridge, with a percussion cap and fuse affixed and lighted, in his hand till it blew off."

A case very similar to the last was reported in the newspapers as having occurred at St. John's, New Brunswick, during the recent eclipse of the moon. A gentleman stood at the window of a hotel, holding in his hand a dynamite cartridge, which he intended to fire as a signal when the eclipse commenced. The fuse burnt out sooner than he expected, his arm was blown to pieces, and two other gentlemen who were in the room at the time were severely injured.

"In one case, two leaky canisters, full of nitro-glycerine, were soldered under continual reports produced by the heating of drops leaking out, but no accident ensued.

"In one case, a man took to greasing the weeels of his waggon with nitro-glycerine, not knowing what it was, and it went all right until it struck hard against something, and the wheels went to pieces.

"In one case it was burnt in a lamp, as an improvement on petroleum."

At Newcastle, a number of cans of nitro-glycerine were broken open by blows of a spade, and then flung into a hole. A melancholy explosion was the result, by which several persons lost their lives.

There is no doubt that nitro-glycerine is a dangerous substance, even in the form of dynamite. But so is gunpowder, and so is steam; and this fact, though it should lead to the greatest care being taken in the use of the explosive, is of itself no reason for abandoning it, for power and danger are inseparable.

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

(Continued from page 308.)

B.

Bachouanan River empties itself into the easterly part of Lake Superior, about half-way between the Falls of St. Mary and Red River. [Batchawaung, in late maps.]

Barbue Point, on the River St. Lawrence, about a mile and a half above the lower end of the fourth township. [Barbue=Catfish.]

Barbue River: now called the Orwell. [Better known as "Big Otter Creek."]

Baril, Isles du, in the River St. Lawrence, lie in front of the township of Elizabeth Town.

Baril, Pointe au, on the River St. Lawrence, above Osweigatchie, and higher than the ship-yards.

Barque, Isle de la, is a small island in Lake Ontario, lying rather farther out, and pretty near to the Isle de Quinté.

Barrier Point, the west point, where the River Petite Nation empties itself into the Ottawa. [Petite Nation: The complete expression was "Petite Nation des Algonquins."]

Barton Township, in the County of Lincoln, lies west of Saltfleet, and fronts Burlington Bay. [From Barton in Lincolnshire, which, to distinguish it from many other Bartons (Barntowns) in England, is known as "Barton on the Humber."]

Bass Cove, in Adolphustown, Bay of Quinté, lies northward of Perch Cove.

Bass Islands: a group of islands at the west end of Lake Erie, situated between the Western Sister and Cunningham's Island. [The Otchipway word for Bass is ashigan.]

Bass Island, in the Bay of Quinté, lies off near to the townplot in Adolphustown.

Bastard Township lies in the rear and to the northward of Lansdown and Leeds. [From the name of a well-known ancient Devonshire family, seated in modern times at Kitley, near Plymouth.]

Batteau Island, in the River St. Lawrence, above Bearded Island.

Batture Grand, on the Ottawa river, below the Portage du Chêne. [Batture=Gold-lacquer.]

[*Bayham Township*, in the County of Middlesex, lies between Malahide and Houghton. 2nd Edition. From one of the titles of Lord Camden, who was Viscount Bayham as well as Earl Camden.]

Bearded Island, in the River St. Lawrence, above Lake St. Francis.

Beauharnois Isle, in the north-easterly part of Lake Superior, not a great way from the shore, and eastward of Isle Hocquart.

Beaver Creek rises in the township of Caistor, and running through part of Gainsborough, empties itself into the Welland, to which river it runs close and nearly parallel for almost four miles, before it discharges itself into the river.

Beaver Creek, in the township of Humberstone, runs into Lake Erie, west of Row's Point.

Beaver Creek runs into Lake Superior, on the north side, between River Aupie and River Rouge.

Beaver River empties itself into the Narrows a little below the Falls of St. Mary, running from north to south.

[*Bedford Township*, in the County of Frontenac, to the north of Loughborough and Pittsburg and east of Hinchinbroke. 2nd Edition.]

Belle River runs into Lake St. Clair, to the eastward of River aux Prices, and is navigable for boats some way up.

Bertie Township is on the west side of Niagara river, in the County of Lincoln; it lies south of Willoughby, and open to Lake Erie. [From the family name of the Earls of Lindsey.]

Beverly Township, in the West Riding of the County of York, lies west of Flamborough, and opposite to Dundas Street. [From Beverley, a borough and market-town in the East Riding of York, in England, famous for its Minster, founded by King Athelstan.]

Biche, Marais à la, empties itself into Lake Ontario at the north-east part of the township of Grantham. [Biche=Hind.]

Binbrook Township, in the County of Lincoln, is situated between Saltfleet, Glandford and Caistor. [From Binbrook, an ancient market-town of Lincolnshire, England.]

Black Bay, on the north shore of Lake Superior, lies a little east of Isle de Minette and west of Shanguenac. [Elsewhere in this Gazetteer, Isle de *Minatte.*]

Black Creek, in the County of Lincoln, discharges itself into the River Niagara, in the township of Willoughby, some miles above Chippewa.

Blandford Township, in the West Riding of the County of York, lies to the northward of Dundas Street, opposite to Oxford, and is washed by the Thames. [From Blandford, an ancient town in Dorsetshire, which gave the title of Marquis to John Churchill, the great Duke of Marlborough.]

Blenheim Township, in the West Riding of the County of York, lies to the northward of Dundas Street, opposite Burford. [Blenheim is the name of the palace at Woodstock, presented by the nation to the first Duke of Marlborough.]

Block Township: See Binbrook.

Bodêt, Pointe au, on the north shore of Lake St. Francis, is in Monsieur de Longueil's seigniory, and a little to the east of the cove, in which is the boundary between the provinces of Upper and Lower Canada. [In Bouchette's books, this is *Pointe au Beaudet.* Trestle-point?]

Bodêt, River au, runs through part of the township of Lancaster, and empties itself into Lake St. Francis, east of Pointe au Bodêt.

Bois Blanc Island.—This island lies east of Rocky Island (in the strait between Lake Erie and Lake St. Clair), but a little lower down and close in with the east shore: it contains from 150 to 200 acres of good land, but little or no marsh: it is covered with wood, chiefly white wood, and is not as yet improved. The common ship channel is between it and the east shore, which is narrow, and forms the best harbour in this country. From the situation of this island, it entirely commands the Detroit river from Lake Erie; at its upper end appear to be good situations for water-mills. A wider ship channel is on the west side of the island, but not so much frequented. The garrison of Amherstburgh being on the east shore, in Malden, furnishes a small detachment to Bois Blanc.

Bonne Chere, Rivière de la, runs into the Ottawa river, above the River Matavaaschie, west of the Rideau.

Bowen's Creek runs into the Bay of Quinté just below the Mohawk settlement, and near to John's Island.

Brant's Village, or the Mohawk Village, Grand river. [Now Brantford.]

Bristol, now called the township of Darlington.

Burford Township, in the Western District, lies between Dindham and Dundas Street. [From Burford, a market-town in Oxfordshire.]

Burgess Township lies to the northward of the township of Bastard. [From a Devonshire family so named.]

C.

Cabot's Head is a very large promontory running into Lake Huron, west of Gloucester or Matchedash Bay, and embays a large part of that lake at its easternmost extremity, stretching itself towards the Manitou Islands. [From Sebastian Cabot, discoverer of Newfoundland, 1497.]

Caistor Township, in the County of Lincoln, lies between Binbrook and Gainsborough, and is watered by the River Welland. [Caistor is an ancient market-town in the English County of Lincoln: a Roman camp or *Castra*.]

[*Caledonia Township*, in the County of Prescott, is on the south, and in the rear of Longueuil's seigniory, ascending the Ottawa or Grand river. 2nd Edition.]

[*Calumet, Grand*, on the Ottawa river, on the south side, above the Portage de Montagne.]

Calumet, Pointe au, on Lake Superior, on the north shore, the first point west of River du Chêne, between which places the coast, consisting of perpendicular rocks, is dangerous.

Cambridge Township, in the County of Stormont, lies to the south, and in the rear of Clarence. [So named in honour of the Duke of Cambridge.]

Camden East, the township of, in the Midland District, lies northerly of Ernest-town.

Camden Township, in the County of Kent, called also Camden West, lies on the north side of the River Thames, opposite to Howard. [From Lord Camden, successively Chief Justice of the Common Pleas and Lord High Chancellor of England, temp. George III.]

Canada, or the Province of Quebec. By the Royal Proclamation of the seventh of October, 1763, this province was bounded on the

east by the River St. John, and from thence, by a line drawn from the head of that river, through Lake St. John, to the south end of Lake Nipissing; from whence the line, crossing the River St. Lawrence and Lake Champlain in the 45th parallel of North latitude, passes along the high lands which divide the rivers that empty themselves into the River St. Lawrence, from those which fall into the sea; and also along the north coast of the Baye de Chaleurs, and the coast of the Gulf of St. Lawrence to Cape Rosiers; and from thence, crossing the mouth of the River St. Lawrence, by the west end of the island of Anticosti, terminates at the River St. John.

An Act of Parliament, passed in 1774, has removed the northern and western limits of the province of Quebec, adding to its jurisdiction all the lands comprised between the northern bounds of New York, the western line of Pennsylvania, the Ohio, the Mississippi, and the southern boundaries of Hudson's Bay Company. [The name CANADA originated in a mistake of the first French navigators of the St. Lawrence. The natives along the river, on visiting the newly-arrived strangers, would point to their encampment or village on the shore, using often the word *Kanata*, *i.e.* huts or village. The French, with their European notions, took the word to be a territorial designation. Jacques Cartier imagined that the name was applied to the district extending from the Isle des Coudres to a point some distance above the site of Quebec; while he gathered, probably in a like fallacious manner, that the country below was called by the natives *Saguenay;* and also that they called the country above, *Hochelaga.* It is, however, certain that the early natives of the country were not in the habit of thus generalizing geographically. The expressions which they used to designate particular localities were for the most part rough descriptions, simply for convenience of discrimination and recollection in their hunting or warlike excursions. Like other primitive people, they were accustomed to give collective names to groups of men, but not to extensive areas.—The application of the name *Canada* by degrees to wider and wider spaces, until now it covers half the North American Continent, is curious; but it is simply a repetition of what has happened in the case of the geographical terms ITALY, GREECE, HELLAS, AFRICA and ASIA, each of which denoted, at the outset, a local region of narrow limits.]

Canada, Upper, commences at a stone boundary on the north bank of the Lake St. Francis, at the cove west of Pointe au Bodêt, in the

limit between the township of Lancaster and the seigniory of New Longueil, running along the said limit in the direction of North 34 degrees West, to the westernmost angle of the seigniory of New Longueil. [The error of *Longueil* for *Longueuil* occurs elsewhere in this Gazetteer. A like want of precision is observable in the orthography of other names.] Thence along the north-western boundary of the seigniory of Vaudreuil, running north 25 degrees east, until it strikes the Ottawa river, and ascends by it into Lake Tomiscaming; and from the head of that lake by a line drawn due north, until it strikes the boundary line of Hudson's Bay, including all the territory to the westward and southward of the said line, to the utmost extent of the country known by the name of Canada.

This province was divided into nineteen counties by proclamation, the 16th of July, 1792, viz: "Addington, Dundas, Durham, Essex, Frontenac, Glengary, Grenville, Hastings, Kent, Leeds, Lenox, Lincoln, Norfolk, Northumberland, Ontario, Prince Edward, Stormont, Suffolk, York." They send sixteen representatives to the provincial parliament. [In the edition of 1813, the last paragraph reads thus: "This province is divided into districts, counties and townships. The counties send 25 representatives to the provincial parliament."]

Canard's River empties itself into the Detroit river, at the Huron cornfields, somewhat below Fighting Island. About four miles up this river are excellent mill-seats, to which loaded boats can go. There is a fine limestone quarry in the rear of the cornfields, nearly in the centre of the Huron reserve. [Now Canard river.]

Cardinal, Pointe au, on the River St. Lawrence, lower down than Point Gallo, in Edwardsburgh. [Point Gallo means Pointe au Gallop, as given subsequently.]

Canise Island, in the north-east part of Lake Simcoe. [This island retains its name. Perhaps it is from the Irish St. Canice.]

Carleton Island lies near to Grand Island, opposite to Kingston, and nearest the south shore, where Lake Ontario descends into the St. Lawrence. Kingston garrison furnishes a detachment to this place. [From Gen. Carleton, afterwards Lord Dorchester.]

Carribou Island, in Muddy Lake, between Rocky Point and Frying Pan Island. [This Muddy Lake is stated below to be situated between Lake Huron and Lake George.]

Castle Point, in Traverse Bay, Lake Ontario, lies between Tower Point and Point Traverse. [This Traverse Bay is in Marysburgh, Prince Edward County.]

Cat Island, or Isle au Chat, in the River St. Lawrence.

Cataraqui, now called Kingston. [Cataraqui=Rocks above water.]

Cataraqui, Petit, nearly in the centre of the township of Kingston, opposite to Isle la Forêts.

Cataraqui, Isle de Petite, off the north part of Isle la Forêt, opposite to the township of Kingston.

Catfish Creek, or River à la Chaudière, or Kettle Creek. [Augustus Jones gives the Indian name as Maunemack-sippi—Large Catfish river.]

Catfish Island lies at the west end of Long Reach in the Bay of Quinté.

Cauchois Isle, now called Howe Island, by proclamation, the 16th July, 1792.

Cedar Creek runs into Lake Erie, near the east end of the two connected townships, and is sometimes called Cedar river.

Cedar Island, a little below Kingston, lies off the mouth of Hamilton Cove, is rocky and not fit for cultivation.

Cedres, Petite Isle aux: See Cedar Island.

Celeron Isle lies at the entrance of Detroit river, a little south of Grosse Isle. Is small and unimproved. [From M. de Céléron, a French military officer in Canada in 1752.]

Charlottenburgh, the township of, is on the River St. Lawrence, and in the County of Glengary, being the second township in ascending. [A compliment to Queen Charlotte ; so also the following.]

Charlotteville Township, in the County of Norfolk, lies west of Woodhouse, and fronts Long Point bay.

Charron River empties itself into Lake Superior, on the north-east shore, to the northward of River de Montreal.

Chasse, Rivière de la Belle, runs into the River St. Lawrence, about two miles below Isle Rapid Plat.

Chat Lake is part of the Ottawa river, above Lake Chaudière, and rather less.

Chat, Isle au, in the River St. Lawrence, opposite to the township of Osnabruck, contains from 100 to 150 acres. The soil is good.

Chatham Township, in the County of Kent, lies to the northward of the Thames, opposite Harwich.

Chaudière Falls, on the Ottawa River, 36 feet high. They are a little above the mouth of the River Rideau, and below Lake Chaudière. [Chaudière=Caldron.]

Chaudière Lake is formed by the widening of the Ottawa river, above the mouth of the River Rideau, and below Lake Chat.

Chaudière, Rivière à la, or Catfish Creek, runs into Lake Erie, west of Long Point.

Cheboutequion is one of the lakes on the communication between Lake Simcoe and the Rice Lake. [This is the Shebaughtickwyong of Owen's Map. In Baraga, Tchibaiatig is a Cross: literally wood of the dead; *i. e.*, wood to be placed on a grave. But the word given by later Otchipway authority is Shebahtahgwayong=Full of Channels. The present name is Buckhorn Lake.]

Chenal Ecarté, Isle de, in the River St. Lawrence, opposite the township of Cornwall, contains from seven to eight hundred acres: the soil is good.

Chenal Ecarté River runs nearly parallel to the River Thames, and empties itself at the entrance of River St. Clair into Lake St. Clair. [Chenal Ecarté=Disused, discarded channel.]

Chêne, Isle du, in Lake Ontario, lies off the easterly shore of Marysburgh, and close to the land. [Chêne=Oak.]

Chêne, Pointe au, on the River St. Lawrence, lies east of River de la Traverse, and nearly opposite to St. Regis.

Chêne, Portage du, on the Ottawa River, immediately below Lake Chaudière.

Chêne, Riviére du, runs into the Bay of Michipicoten, Lake Superior, west of River Michipicoten.

Cheveaux, Pointe au, on the north shore of Lake Ontario, and to the eastward of River Ganaraskee. [Cheveaux, perhaps for chevaux =Horses. Ganaraskee=Smith's Creek at Port Hope.]

Chippewa Creek, (or Chipeweigh river,) called the Welland, by proclamation, the 16th of July, 1792, discharges itself into the River Niagara, a little above the great falls: it is a fine canal, without falls, of forty miles in length. [The original pronunciation of the final *a* was *ay*: as is shewn by Baraga's Otchipwè. A. Jones gives the name of Chippewa Creek as Chonotauch; but he omits the interpretation.]

Claies, Lake aux, now Lake Simcoe, is situated between York and Gloucester bay, on Lake Huron: it has a few small islands and

several good harbours: a vessel is now building for the purpose of facilitating the communication by that route. [Claies=Hurdles or Wattle-work, perhaps used in the capture of fish.]

Clarence Township, in the County of Stormont, is the fifth township as you ascend the Ottawa river. [Clarence, from the Duke of Clarence, afterwards William IV.]

Clarke Township, in the County of Durham, lies to the west of Hope, and fronts Lake Ontario. [Clarke, from Gen. Sir Alured Clarke: See Art. *Alured.*]

Clinton Township, in the County of Lincoln, lies west of Louth, and fronts Lake Ontario. [From Gen. Sir Henry Clinton.]

Cochela, an island in Lake Huron, lying between the south-easterly end of the Manitou Islands, and the north main. [Probably in the manuscript from which the Gazetteer was printed, this was *Cloche la*, that is Isle la Cloche. In several other instances it is evident that errors have arisen in these pages from misreading the "copy."]

Cochon, Isle au, a small island between Kingston, Gage Island. and Wolfe Island; nearest to the latter.

Colchester Township, in the County of Essex, is situated upon Lake Erie, and lies between Malden and Gosfield.

Cooke's Bay, on the south side of Lake Simcoe. Holland's river discharges itself into the head of this bay. [From Capt. Cook, the circumnavigator.]

Coote's Paradise, is a large marsh lying within Burlington bay, and abounding in game. [From Capt. Coote of the 8th regiment, a keen sportsman. Among the letters of Mr. Stegman, the early surveyor, preserved in the Crown Lands Department, is the following report of the survey of the village of Coote's Paradise, addressed to the Hon. D. W. Smith, Esq., Acting Surveyor-General in 1801: "Sir,—I have the honour to report that in obedience to your instructions bearing date May 1st, 1801, for the survey of the village near Coote's Paradise, I have executed the same agreeable to the sketch received from the Surveyor-General's office: that Dundas street has been my principal guide, in conformity to which the survey is performed: the river and north branch have been carefully scaled, and particular notice taken of all other small creeks and their courses, together with the real situation within the limits of the survey, &c." The village here projected is the present Dundas.]

Coppermine Point, in the east end of Lake Superior, in the vicinity of which, some years ago, an attempt was made to dig for copper ore, but soon after abandoned. This place is nearly north-east and by north from Point Mamonce, and between it and the mouth of the River Montreal.

Cornwall, the Township of, in the County of Stormont, is situated upon the River St. Lawrence, and the third township in ascending the river. [Not from the county, but from an English family name. In Westminster Abbey is a monument to the memory of Capt. James Cornwall, R. N., of Bradwardine Castle, County of Hereford, slain in an engagement with the French and Spanish Fleets off Toulon, February 12th, 1743.]

Cramahe Township, in the County of Northumberland, lies west of Murray, and fronts Lake Ontario. [From the Hon. H. T. Cramahe, Administrator of Canada, 1770–1774.]

Credai River, or River Credit, discharges itself into Lake Ontario, between the head of that lake and York, in the Mississaga territory. It is a great resort for these and other Indian tribes, and abounds in fish. [The Indian term was Messenebe=River where credit for purchases is given. In Baraga a debtor is mesinaiged; a debt, mesinaigewin; literally, a marking or scoring down. A little book or bill is mesinaigans.]

Creüse River. Part of the Ottawa river is so called above les Alumets. [Creuse=Hollow, deep.]

Cris, Big and Little. Two points on the north shore on Lake Superior, east of Isle Grange, and surrounded by islands: between these points is a noted and safe harbour. [Cris, short for Cristinaux.]

Crosby Township, lies to the northward of Leeds, and to the westward of Bastard. [Two hamlets in Lancashire, 5½ miles from Liverpool, are called respectively Great and Little Crosby.]

Crowland Township, lies to the northward of Lincoln, lies west of Willoughby, and is watered by the Welland. [Crowland is an old town in Lincolnshire possessing the remains of a magnificent abbey, and a curious stone bridge bearing a statue of King Ethelbald.]

Cumberland Township, lies partly in the County of Stormont, and partly in Dundas, and is the sixth township in ascending the Ottawa river. [A compliment, probably, to the Duke of Cumberland.]

Cunningham's Island, is situated at the western end of Lake Erie, south-westerly of the Bass Islands, and southerly of Ship Island.

D.

Darling Island, the larger of two islands in the entrance of Lake Simcoe. [Known at the present time as Snake Island, from Chief John Snake, who lived there.]

Darlington Township, in the County of Durham, lies to the west of Clarke, and fronts upon Lake Ontario. [From Darlington in the English County of Durham.]

Delaware Township, in the County of Suffolk, lies on the east side of the River Thames, on the plains above the Delaware village of Indians. [From the Indian tribe of Delawares who migrated to Canada with the Five Nations or Iroquois in 1783. The native name of the Delaware Indians was Lennilenapee=Original People.]

Dereham Township, in the County of Norfolk, lies to the west of and adjoining to, Norwich. [From Market Dereham in Norfolk, in' the ancient church of which place the poet Cowper was buried in 1800.]

Detour, the entrance into Lake Huron from Muddy Lake, to the south and west of St. Joseph's Island.

Detour, on the north shore of Lake Huron, lies a little to the east of the Isles au Serpent.

Detour, Point, is on the west main, in the strait made by St. Joseph's Island, leading from Muddy Lake to Lake Huron.

Detroit is in about 42 degrees 38 minutes of north latitude, and 81 degrees 40 minutes of west longitude. The French call it Fort Pontchartrain. It has accommodation for a regiment, and it consists of three parts; the town, the citadel, and Fort Lanoult. [The use of Detroit, Strait, as the name of a town is an instance of the conversion of a common into a proper noun. Thus Stamboul, for Constantinople, conveys the idea simply of "the City," from a corrupt modern Greek expression. The situation of Detroit somewhat resembles that of Constantinople. The Otchipway for this locality is Wawcatunong=Turned Channel.]

Detroit, Turn of Little, is the easternmost thereof, on the north shore of Lake Superior.

Detroit, Little, on the north coast of Lake Superior, west of Isle Grange.

Detroit, Petit, in the Upper St. Lawrence. See the narrows of Escott.

Detroit, le Petit, on the Ottawa river, is below the upper main forks of the Ottawa river.

Diable, Isles au, in the River St. Lawrence, lie between the Isle au Long Sault and the township of Osnabruck.

Don River, in the East Riding of the County of York, discharges itself into York harbour. [Surveyor Jones notes that the native designation of the Don was Wonscotiteouach=Back Burnt Grounds, *i.e.*, the Poplar Plains to the north, occasionally overrun with fire.]

Dorchester Mount, is that ridge of mountain running through the County of Lincoln, parallel to Lake Ontario, and is supposed to be a spur of the Allaghany. [At the present day, Queenston Heights and the "Mountain" generally, to Hamilton.]

Dorchester Township, in the County of Norfolk, lies west of, and adjoining to, Dereham, fronting the River Thames. [A compliment to Lord Dorchester, *i.e.* Sir Guy Carleton. There is a Dorchester in Dorsetshire and another in Oxfordshire—both, as indicated by "chester," ancient Roman fortified stations; the former named Durnovaria; the latter Civitas Dorcinia.]

Dover Township, in the County of Kent, lies on the north side of the Thames, opposite to Raleigh.

Dublin, now called the township of York: which see. [It is difficult to conceive what the genius loci of Toronto would have been, had the name *Dublin* continued to be attached to the locality.]

Dubois, Lac, lies between 98 and 100 degrees west longitude from Greenwich, and between the 48th and 50th parallels of north latitude: it lies to the westward of Lake la Pluie, and receives the waters of that lake by River la Pluie, which are carried off again by the River Winipique into the great Lake Winitapa or Winipique, and from thence into Hudson's Bay. This lake contains some islands: it has also a back communication with Lake la Pluie, to the northward, by inferior streams. [Lake of the Woods.]

Duck Cove, on Lake Ontario, in Marysburgh, on the east shore, between Isle du Chêne and Tower Point.

Duck Islands, called the Real Ducks, in Lake Ontario, lie between Wolfe Island and Point Traverse.

Duck Islands, in Lake Ontario, lie off Point Traverse, and northeasterly of it, not far from the Point. There are called the False Ducks.

Duck Islands, are situated between Muddy Lake and Lake Huron, southerly and easterly of St. Joseph's Island.

Duck Point, on Lake Ontario, in the township of Murray, is the first point west of the portage that leads from the head of the Bay of Quinté to the lake.

Duffin's Creek runs into Lake Ontario, in the township of Pickering (east of the river of Easy Entrance), and is remarkable for the quantity of salmon which resort to it. [From the name of an early trader or settler. A. Jones says this stream was designated by the natives, Sinquatickdequioch=Pinewood running alongside.]

Dundas County is bounded on the east by the County of Stormont, on the south by the River St. Lawrence, and on the west by the easternmost boundary line of the late township of Edwardsburgh, running north 24 degrees west, until it intersects the Ottawa or Grand river; thence descending that river until it meets the north-westernmost boundary of the County of Stormont. The County of Dundas comprehends all the islands near it in the River St. Lawrence. The boundaries of this county were established by proclamation the 16th July, 1792. It sends one representative to the provincial parliament. [From the Right Hon. Henry Dundas, Secretary of State for the Colonies in 1794.]

Dunwich Township, in the County of Suffolk, lies to the west of Southwold, having the River Thames for its north, and Lake Erie for its south boundary. [Viscount Dunwich is one of the titles of the Earl of Stradbroke, whose family name is Rous.]

Durham County is bounded on the east by the County of Northumberland; on the south by Lake Ontario, until it meets the westernmost point of Long Beach; thence by a line running north 16 degrees west, until it intersects the southern boundary of a tract of land belonging to the Mississaga Indians, and thence along the said tract, parallel to Lake Ontario, until it meets the north-westernmost boundary of the County of Northumberland. The boundaries of this county were established by proclamation the 16th July, 1792. It sends, in conjunction with the County of York, and the first riding of the County of Lincoln, one representative to the provincial parliament.

Dyer's Island, in the head of the Bay of Quinté, lies to the eastward of Mississaga Island. [Now Grape Island.]

E.

East Bay, in Adolphustown, Bay of Quinté, is where the forks of the north channel open, descending south-westerly from Hay Bay.

East Lake lies between the townships of Marysburgh and Sophiasburgh, immediately to the north-east of little Sunday Bay, on Lake Ontario.

Eastern District, The, was originally constituted and erected into a district by the name of the District of Lunenburgh, in the province of Quebec, by His Excellency Lord Dorchester's proclamation of the 24th July, 1788, and was taken principally off the west end of the District of Montreal. It received its present name by an Act of the provincial legislature; it is bounded easterly by the province of Lower Canada; southerly by the River St. Lawrence; northerly by the Ottawa river; and westerly by a meridian passing through the mouth of the Gananoque river, in the township of Leeds.

Ecors, Grand, the high lands to the eastward of York. [Ecors=Cliffs in escarpments, in Old French. At the present day Scarborough Heights.]

Ecors, Petit, on the north shore of Lake Ontario, east of Salmon river, and between it and River Ganaraska. [Salmon river is probably the Highland Creek for which, according to A. Jones, the expression was, Y-at-qui-i-bi-no-nick=A Creek comes out under the Highlands.]

Edinburgh, now called the township of Pickering: which see.

Edwardsburg Township, in the County of Grenville, is the seventh township in ascending the River St. Lawrence. [A compliment to Prince Edward, Duke of Kent.]

Elbow Island, in the north-westerly part of Lake Superior, lies to the north-east of the Grand Portage, and westerly of Isle Maurepas.

Elizabeth Town; the township of, in the County of Leeds, is the ninth township in ascending the River St. Lawrence. [Compliment to the Princess Elizabeth.]

Elmsley Township, in the Eastern District, lies to the south, and in the rear of Cumberland. [From Elmsley, Chief Justice of Lower Canada in 1802.]

Epingles, les, on the south-west branch of the Ottawa River, about the main or Upper Forks, between Portage à la Rose and Portage Paresseux, but nearer to the latter; it is nearly halfway from the fork to the Lake Nipissing Portage. [Epingles=pins. Comp. The Needles, off the Isle of Wight.]

Erie, Fort, in the township of Bertie, is in about 42 degrees, 53 minutes, and 17 seconds of north latitude. It has a barrack for

troops and a blockhouse. Lake Erie narrows here into the strait which carries the waters over the great Falls of Niagara: there is a good harbour here for vessels of any size.

Ernest Town, the township of, in the Midland District, is the first township above Kingston, sheltered from Lake Ontario by Amherst Island, which lies in its front. [Compliment to Prince Ernest Augustus, Duke of Cumberland.]

Essex County is bounded on the east by the County of Suffolk; on the south by Lake Erie; on the west by the River Detroit to Maisonville's Mill; from thence by a line running parallel to the River Detroit and Lake St. Clair, at the distance of four miles, until it meets the River La Tranche or Thames, and thence up the said river to the north-west boundary of the County of Suffolk. The boundaries of this county were established by proclamation, the 16th July, 1792. It sends, in conjunction with the County of Suffolk, one representative to the provincial parliament.

Etobicoke Township, in the East Riding of the County of York, lies to the westward of the township of York, and has been selected for the settlement of the corps of Queen's Rangers, after they shall be discharged. [A. Jones gives the word as Atobicoake=Black Alder Creek.]

Eturgeon Lac: see Sturgeon Lake.

F.

Falls of Niagara. A stupendous cataract in the River Niagara, a little below where the River Welland or Chippewa joins the waters of the lakes. [Oneawgara is Mohawk for Neck. It denotes the whole of the channel from Lake Erie to Lake Ontario. The nasal *o* has been lost from the beginning of the word, as in Chippewa for Otchipway and other words. A. Jones gives the Otchipway expression for the Niagara as Y-on-noake-sippi=Whirlpool river.]

Falls, Great, on the River Petite Nation.

Falls, Long: see the Long Sault.

Fighting Island, called by the French Grose Isle aux Dindes, lies about four miles below Detroit; it is valuable for pasture, but has very little wood: the Indians in the summer make it a place of encampment, and some of them plant a little corn: there is no other improvement on it. On the uppermost end of the island are vestiges of intrenchments, from behind the breastwork of which the Indians

annoyed the British shipping as they passed, shortly after the reduction of Detroit. [See Parkman's Conspiracy of Pontiac, p. 252.]

Finch Township, in the County of Stormont, lies in the rear, and to the westward of Osnabruck. [Probably from Heneage Finch, fourth Earl of Aylesford, Lord Steward of the Household, temp. Geo. III.]

Flat Islands, lie towards the west end of the Manitou Islands, and open to the Straits of Michilimackinac upon Lake Huron.

Flamborough Township, distinguished by East and West Flamborough, in the West Riding of the County of York, lies west of the Mississaga lands, and fronts Dundas street. [Flamborough Head in Yorkshire, England, forms the northerly side of Bridlington or Burlington Bay.]

Foin, Point au, in the River St. Lawrence, the first above River à la vielle Galette, in Edwardsburgh. [Foin=Hay.]

Force, Isle de la, a very small island off the south-west point of Isle Tonti.

Foreland, North, (formerly called Long Point,) on Lake Erie: which see.

Foreland, South, (formerly called Point Pelé,) on the north shore of Lake Erie, west of Landguard. There is good anchorage for vessels on either side of the point, which runs out a considerable distance, but the best is on the east side, in clay bottom. Near the extremity of the point, and on the east side, is a pond, where boats in general may enter, and be secure from most winds. A long reef runs out from the point. [The French name has prevailed.]

Forêt, Isle au, now called Gage Island by proclamation, 16th July, 1792. See Gage Island.

Forêt, Isle la. See Isle la Force.

Forks of the Bay of Quinté, where the East Bay unites with the North Channel, a little to the northward of Grand Bay.

Fort Amherst. See Amherstburgh.

Fort George: the military post and garrison now building on the heights above Navy Hall, at the entrance of Niagara river, in the township of Newark, in the County of Lincoln. [In the edition of 1813 the words "now building" are omitted. This fort took the place of the French fort on the opposite side of the river, relinquished to the United States in 1796.]

Francis Island is in the north part of Lake Simcoe.

Francis, Lake St., is that part of the River St. Lawrence, which, widening above the Coteau de Lac, loses its current and becomes a long and narrow lake.

François River runs south-west from Lake Nipissing into Lake Huron; it has several portages: that nearest to Lake Nipissing is called Portage de Trois Chaudiers, in length about half a mile. [French river. François, old French for Français.]

Frederick Point is on the east side of Kingston harbour, and on the west side of Haldimand Cove, which is made by it and Point Henry. [From the name of the Duke of York.]

Fredericksburgh Township, in the County of Lenox, lies to the west of Ernest Town, in the Bay of Quinté.

French River. See River François.

Frenchman's Creek, in the County of Lincoln, discharges itself into the River Niagara, in the township of Bertie, a few miles below Fort Erie.

Frenchman's River, or French river, or River François.

Frontenac County, is bounded on the east by the County of Leeds; on the south by Lake Ontario; on the west by the township of Ernest Town, running north 24 degrees west, until it intersects the Ottawa or Grand River; and thence descending that river until it meets the north-westernmost boundary of the County of Leeds. The boundaries of this county were established by Proclamation the 16th July, 1792. It sends, in conjunction with the County of Leeds, one representative to the provincial parliament. [From Louis de Buade, Count of Frontenac, Governor-General of Canada, 1672–1682, and again 1689–1698.]

Frontenac Fort, now comprehended within the Town of Kingston, is just to be discovered from its remains, and an old fosse near the present barracks.

Frying-Pan Island, in Muddy Lake, to the northward of Point de Tour.

G.

Gage Island, lies off Kingston, in Lake Ontario, between Amherst Island and Wolfe Island. [From General Gage, successor of Amherst, as Commander-in-chief of the British Forces in North America, in 1763. Its French name was Isle au Forêt.]

Gainsborough Township, in the County of Lincoln, lies between Pelham and Caistor, and fronts the Welland. [From Gainsborough in Lincolnshire.]

Galette, on the River St. Lawrence, in Edwardsburgh.

Galette, Rivière à la vielle, runs into the River St. Lawrence above Isle Fort Levi. [Galette=Broad thin cake.]

Gallop, Point au, on the north shore of the River St. Lawrence, just below Hospital Island, in Edwardsburgh.

Galloos, les, or Gallops, on the River St. Lawrence, are the Rapids off Pointe Galloppe in Edwardsburgh.

Gananoqui River discharges itself into the River St. Lawrence, in the Township of Leeds. As high as the first rapid the shore is bold, and the water deep; there is an excellent harbour in the mouth of the river; the water is from 12 to 15 feet deep in the channel, and the current is very slow. This river was called the Thames before the division of the Province of Quebec. [Gananoqui=Place of residence.]

Ganaraska River, by some called Pemetescoutiang, runs into Lake Ontario on the north shore, eastward of the Petit Ecors, and west of Pointe aux Cheveaux. From the mouth of this river is a carrying place of about eleven miles to the Rice Lake, through an excellent country for making a road. [Pametescoutiang=High burnt plains.]

Geneter, Isle au, in the River St. Lawrence, lies a little above Isle au Chat. [Geneter=An implement used in grooming a horse.]

Geneva Lake, called Burlington Bay by Proclamation, 16th July, 1792.

George Lake is situated below the Falls of St. Mary, and to the northward of Muddy Lake: it is about 25 miles long, and has very shallow water.

Gibraltar Point is the western extremity of a sand bank which forms the harbour of York, and upon which block houses are erected for its defence. [There is a Gibraltar Point near Wainfleet in the English County of Lincoln.]

Glanford Township, in the County of Lincoln, is situated between Ancaster, Barton, Binbrook, and the Six Nations of Indians; sometimes called the Grand River lands. [From Glanford in Norfolk.]

Glasgow; now called the township of Scarborough.

Glengary County is bounded on the east by the line that divides Upper from Lower Canada, on the south by the River St. Lawrence, and on the west by the Township of Cornwall; running north 24 degrees west, until it intersects the Ottawa or Grand River, thence descending the said river until it meets the divisional line aforesaid.

Glengary County comprehends all the islands nearest to it in the River St. Lawrence. The boundaries of this County were established by Proclamation the 16th July, 1792; it consists of two Ridings, each of which sends one representative to the Provincial Parliament. [From the name of a Highland Regiment, afterwards disbanded and principally settled here under the auspices of Bishop Alex. McDonell.]

Gloucester, on Lake Huron, (formerly called Matchedash).

Gloucester Fort, or Pointe aux Pins, the first point on the north shore in the narrows leading from Lake Superior towards the Falls of St. Mary. [Probably in honour of the Duke of Gloucester, brother of George III.]

Gloucester Township, in the County of Dundas, is the seventh township in ascending the Ottawa River: it lies eastward also of, and adjoining, the River Rideau.

Gorgontua, a remarkable high rock on the north shore of Lake Superior, lying at a small distance, and southerly of the point which forms Michipicoten Bay; to the southward and eastward the rock is hollow with an opening into it. [Given by Capt. Bayfield as Gargantua. In a late map, it is Cargantua.]

Gosfield Township, in the County of Essex, is situated upon Lake Erie, and lies west of Mersea. [From Gosfield Hall, a seat of the Duke of Buckingham's, near Halsted, in Essex.]

Gower Township lies on the west side of the River Rideau, and is the second township in ascending that river. [Baron Gower is one of the titles of the Marquis of Sutherland.]

Grand Bay in the Bay of Quinté, lies immediately below the main forks.

Grand Isle, now called Wolfe Island, by Proclamation, 16th July, 1792, is situated between Cataraqui and Carleton Island, where Lake Ontario falls into the St. Lawrence.

Grand Marsh, in the western district, lies in the rear of the parishes of l' Assomption and Petite Côte, on the Detroit, and communicates with Lake St. Clair opposite to Peach Island, and with the Strait opposite to Fighting Island.

Grand River (Lake Erie), called the Ouse, by Proclamation, the 16th July, 1792, rises in the Mississaga country and running through the West Riding of the County of York, divides Lincoln from Norfolk, and discharges itself into Lake Erie between Wainfleet and Rainham. [The Otchipway name was O-es-shin-ne-gun-ing=It

washes the timber down and carries away the grass and weeds. A. Jones.]

Grand, or Ottawa River, is that channel which carries the waters of Lake Tamiscaming till they make a junction with those of the St. Lawrence, a little above Montreal. This river is the northern boundary of Upper Canada, and the route which is taken by the Lower Canada traders to the north-west: there are a great many rapids on this communication.

Grange Isle, near the north shore of Lake Superior, west of the Cris Points, and in front of Grange Bay.

Grange River empties itself into a river of that name on the north shore of Lake Superior west of the Cris. This river leads to Nepigon, a place which was formerly remarkable for furnishing the best beaver and martin, and was the farthest advanced post of the French traders at the time that Great Britain conquered Canada.

Grantham Township, in the County of Lincoln, lies west of Newark, and fronting Lake Ontario. [From Grantham, in Lincolnshire.]

Grasse Bayede on the north shore of Lake Ontario, lies to the eastward of Point aux Cheveaux.

Gravel Point, on Lake Ontario, in Marysburgh, lies between St. Peter's Bay and Point Traverse.

Graves Island, in the south-east part of Lake Simcoe. [From Admiral Graves.]

Gravois, Pointe au, is the west point of the Little Detroit, on the north-coast of Lake Superior. [Gravois=Rubbish. Probably the stream by Oakville—16-mile creek—the Otchipway name of which is given by A. Jones as Ne-sau-ge-y-onk, without its interpretation. It is the same as Nassagawaya, the name borne by the Township in which the west branch of the 16-mile creek rises. Its Otchipway meaning is "Two Outlets."]

Gravois, Rivière au, in the Mississaga land, in the north shore of Lake Ontario, runs into that lake between Burlington Bay and River au Credai.

Grand Island, or Grand Isle, in the River Niagara, is situated in front of the Township of Willoughby and is of considerable size: below it is Navy Island.

Great Cape, on the north side, where Lake Superior descends into the narrows of the Fall St. Mary. [It is now better known by its French name, Gros Cap.]

Green Point, in the Bay of Quinté, is the north point in Sophiasburgh, and lies opposite to John's Island.

Grenville County is bounded on the east by the County of Dundas, on the south by the River St. Lawrenee, and on the west by the Township of Elizabethtown, running north 24 degrees west, until it intersects the Ottawa or Grand River; thence it descends that river until it meets the north-westernmost boundary of the County of Dundas. The County of Grenville comprehends all the islands near to it in the River St. Lawrence. The boundaries of this county were established by Proclamation, 16th July, 1792. It sends one representative to the Provincial Parliament. [From George Grenville, Secretary of State, 1762.]

Grey's River empties itself into Lake Simcoe, on the east side.

Grimsby Township, in the County of Lincoln, lies west of Clinton, and fronts Lake Ontario. [From Grimsby, in Lincolnshire.]

Grosse Isle. This island is situated in the River Detroit, and lies a little way lower down than Grosse Isle aux Dindes, but close to the west shore; it contains several thousand acres of excellent land, and plenty of good wood, and is in a high state of improvement; a number of farmers are settled there who possess large quantities of cleared land.

Grosse Isle aux Dindes, called Fighting Island.

Grosse, Isle la (so called by the Canadians) is the same as Michilimackinac.

Gull Island lies among the Duck Islands, off Point Traverse, in Lake Ontario, and is one of the southernmost of the group.

Gwillimbury Township, in the Home district, lies on Lake Simcoe, where Yonge Street meets Holland's River. [From the distinguished Welsh family name Gwillim.]

(To be Continued.)

CANADIAN INSTITUTE.

ANNUAL REPORT OF THE COUNCIL FOR THE YEAR 1873–'74.

The Council of the Canadian Institute beg leave to submit their Report of the proceedings of the Institute for the past year, and to express their gratification at the many valuable papers and communications read to the Institute. The Council, in common with the members of the Institute, are very sensible of the drawbacks attendant upon the occupation of their premises, and hope that a successful effort will shortly be made to erect a new building for their use, as the funds of the Institute have accumulated to such an amount as in their opinion to justify such an undertaking.

It has been proposed to establish a Numismatic Section in connection with the Institute. The proposal the Council have favourably entertained, and they trust that it will go into operation at an early day, and that it may add much to the interest and usefulness of the Institute.

The following is the statement of the proceedings of the Society for the past year, from 1st December, 1873, to 30th November, 1874:—

MEMBERSHIP.

The present state of Membership:

Members at commencement of Session, Dec. 1, 1873		334
Members elected during the Session, 1873–'74		12
		346
Deduct:		
Deaths during the year, 1873–'74	1	
Withdrawn	6	
	—	7
Total, 30th November, 1874		339
Composed of:		
Honorary Members		5
Life Members		18
Corresponding Members		4
Ordinary Members		312
Total		339

COMMUNICATIONS.

The following valuable and instructive papers and communications were read and received from time to time at the ordinary meetings held during the Session:

December 6, 1873.—Prof. Wilson, LL.D., on "A new Map of the Gold Coast and Ashantee Territory."

December 13, 1873.—Prof. H. A. Nicholson, D. Sc., etc., on "Recent Researches on the Fossils of the Province of Ontario."

December 20, 1873.—Annual Report of the Council of the Institute. Prof. Wilson, LL.D., on "Ancient Mining in America, and especially in the Province of Quimbo, Chili."

January 10, 1874.—The President, Rev. H. Scadding, D.D., on "Leaves they have Touched: Autographs, Canadian and American, generally."

January 17, 1874.—Prof. H. A. Nicholson, D. Sc., etc., and G. J. Hinde, Esq., on "The Fossils of the Upper Silurian Rocks of Ontario."

January 24, 1874.—W. H. Ellis, M.A., M.B., on "The Vegetation of the North Shore of Lake Superior."

January 31, 1874.—P. McKellar, Esq., on "Mining in the Lake Superior Region."

February 7, 1874 —Prof. E. J. Chapman, LL.D., on "An Original Theory of the Tides; the Reason of the Saltness of the Sea; the Theory of the Hot Winds; and a New Process for the Extraction of Gold from its Ore."

February 14, 1874.—W. H. Ellis, M.A., M.B., on "A Collection of Botanical Specimens made by Rev. Prof. Campbell, M A., W. Tylter, B.A., and himself." The President, Rev. H. Scadding, D.D., on "A Bronze Medal lately presented to the Institute by the University of Norway."

February 21, 1874.—P. McKellar, Esq., on "The Gold Mines of Lake Superior."

February 28, 1874.—Rev. J. McCaul, LL.D., on "Greek Autonomous Coins, Illustrated by Originals."

March 7, 1874.—J. M. Buchan, M.A., on "The Flora of the Neighbourhood of Hamilton." The President, Rev. H. Scadding, D.D., on "A Hebrew Manuscript of the Book of Esther."

March 13, 1874.—G. Wright, M.D., on "The Use of Plaster of Paris Bandages in Cases of Fracture."

March 14, 1874.—J. Loudon, M.A., on "Willis's Mechanical Apparatus." W. Oldright, M.A., M.D., on "Hygiene, with special reference to the Ventilation of Buildings."

March 21, 1874.—The President, Rev. H. Scadding, D D., on "Leaves they have Touched: Autographs, British and European generally."

March 28, 1874.—Prof. D. Wilson, LL.D., on "Reminiscences of one of the Border Minstrels."

April 4, 1874.—Prof. G. Buckland, on "The Exhaustion of Soils and its Remedies."

FINANCIAL STATEMENT.

S. SPREULL, TREASURER, IN ACCOUNT WITH THE CANADIAN INSTITUTE, DECEMBER 1, 1873, TO NOVEMBER 30, 1874.

		Debtor.		
1873.				
Dec.	1.	To Balance		$562 11
1874.				
March	21.	" Cash Subscriptions		16 00
April	24.	" Government Allowance		750 00
June	2.	" Dividend on Stock, Building Society, half year	$120 00	
Nov.	30.	" " " "	120 00	
				240 00
June	30.	" Interest, Deposit in Royal Canadian Bank	$38 78	
		" " Building Society	21 71	
				60 49

		To Cash Received per Librarian—		
		Subscriptions	$204 00	
		Rent	120 00	
		Journals Sold	46 50	
				370 50
				$1,999 10

1873.		*Creditor.*		
Dec.	8.	By Paid Western Insurance on $5,000		$100 00
1874.				
Jan.	26.	" Copp, Clark & Co., to Account	$150 00	
July	25.	" " " Balance	49 75	
				199 75
Aug.	26.	" " "		281 84
Sept.	18.	" Royal Insurance on $1,800		22 50
May	30.	" Instalment on Six Shares, Provincial Building Society		100 00
		Per Librarian—		
Nov.	30.	By Paid Librarian's Salary	$336 00	
		" Wood and Coal	68 60	
		" Advertising	31 00	
		" Stationery, Stamps, P. O. Box	24 75	
		" Periodicals	15 00	
		" Express Charges	10 40	
		" Coal Oil, etc.	4 65	
		" Waggon Hire	1 10	
				491 50
		By Balance		803 51
				$1,999 10

1874.			
Dec.	1.	Balance Deposited in Provincial Building Society	$803 51
		Building Fund—	
		30 Shares in Provincial Permanent Building Society	3,330 00
		6 " Accumulating Stock	390 00
			$4,523 51

Toronto, 1st December, 1874.

SAMUEL SPREULL, *Treasurer.*

The undersigned Auditors have compared the vouchers for the above items of these accounts with the Cash Book, and find them to agree. The balance in the hands of the Treasurer is $803 51.

W. J. MACDONELL }
JOHN PATERSON, } *Auditors.*

TORONTO, December 19, 1874.

APPENDIX.

BOOKS AND PAMPHLETS RECEIVED IN EXCHANGE FOR THE CANADIAN JOURNAL.

1. Transactions Royal Society of Edinburgh, vol. xxvii, pt. 1, 1872-73.
2. Journal Anthropological Institute of Great Britain and Ireland, vol. iii, No. 2.
3. Journal Linnæan Society; Botany, Nos. 73, 74, 75, 76; Zoology, No. 57.
4. List of Linnæan Society, 1873, and additions to Library, 1872-73.
5. Proceedings Royal Colonial Institute, 1873-74.
6. Report Belfast Naturalists' Field Club, 1872-73.
7. Weekly Journal Society of Arts, (London) July, 1873—September, 1874. (Duplicate).
8. European Mail, January, 1874, and September, 1874.
9. British Trade Journal, January, April and July, 1874.
10. Proceedings Royal Society of Edinburgh, 1872-73.
11. Memoirs Literary and Philosophical Society of Manchester, vol. iv, 1871.
12. Proceedings Literary and Philosophical Society of Manchester, vols 8, 9, 10, 11, 12.
13. Leeds Philosophical and Literary Society, Annual Reports, 1872-73; 1873-74.
14. Journal Iron and Steel Institute, London, Nos. 1, 2, 3.
15. Memoirs of Geological Survey of India, vol. x, pt. 1.
16. Records " " vol. vi, pts. 2, 3, 4.
17. Palæontologia Indica, vol. iv, pts. 3, 4, (Cretaceous Fauna Southern India); vol. i, pt. 1, (Jurassic Fauna of Kutch).
18. Annales des Mines, 7e Série, Tome iv, pt. 4; Tome v, pts. 1, 2, 3.
19. Bulletin de la Société Géologique, Paris, Tomes xxvi, xxvii, xxviii.
20. Memoires de la Société Nationale des Sciences Naturelles de Cherbourg, Tome xvii, 1873.
21. Catalogue de la Société Nationale des Sciences Naturelles de Cherbourg, 1873;
22. Bulletin de L'Athénée Oriental, Paris, No. 13.
23. Cosmos, di Guido Cora, Torino, vol. i, Nos. 5, 6; vol. ii, Nos. 1, 2, 3.
24. Nederlandsch Meteorologisch Saarbock, 1868, 1872, 1873, Utrecht.
25. Suggestions on a Uniform System of Meteorological Observations, Utrecht.
26. Beretninger om Amternes Œconomiske Tilstand, 1866-70, Christiania.
27. De Offenttige Jernbaner, 1871, Christiania.
28. Tabeller vedkommende Norges Handel og Skibsfart, 1870, Christiania.
29. " " Folkemængdens Bevægelse, 1869, "
30. " " Skiftevæsenet i Norge, 1870, "
31. Beretninger om Norges Fiskerier, 1870, Christiania.
32. " Skolevæsenets Tilstand, 1870, Christiania.
33. Oversigt over Indtægter og Udgifter, 1870, 1871-72, 1872-73, Christiania.
34. Kommunale Forholde i Norges Land og Bykomuner, 1867 og 1868, "
35. Den Norske Statstelegrafs Statistik, 1870, Christiania.
36. " Brevposts " 1868, "
37. Fattigstatistik for 1869, Christiania.
38. Carcinologiske Bidrag til Norges Fauna, G. O. Sars, Christiania

39. Die Pflanzenwelt Norwegens, with Map, Dr. F. C. Schübeler, (Duplicate) Christiania.
40. Forekomster af Kise i Visse Skifere i Norge, A. Helland, Christiania.
41. Anden Beretning om Ladegaardsœns Hovedgaard, Forste Hefti, "
42. Remarkable Forms of Animal Life from Great Deeps off Norwegian Coast, Christiania.
43. Generalberetning fra Gaustad Sindssygeasyl for 1870, Christiania.
44. " " " 1871, "
45. On the Rise of Land in Scandinavia, S. A. Sexe, "
46. Lov om Postvæsenet, Christiania.
47. Budget for Marine-Afdelingen, 1872-73, Christiania.
48. Obituary Notice of Christophorus Hausteen, "
49. Cantate ved Universitets Mindefest for Hans Majestæt Kong Carl, Christiania.
50. Tale " " " " "
51. Program " " " " "
52. Om Throndhjems Domkirke, af N. Nicolaysen, Christiania.
53. Die Fisch-Cultur Norwegens, von M. G. Hetting, "
54. Om Kurvmager-Arbeide og Straafletning, "
55. Beretning om Bodsfængslets Virksomhed, 1870, 1871, Christiania.
56. Foreningen til Norske Fortidsmindesmerkers Bevaring, 1870, 1871, Christiania.
57. Nordens ældste Historie, af P. A. Munch, Christiania.
58. De Romanske Sprog og Folk, Joh. Storm, "
59. En Sommer i Finmarken, Russisk Lapland og Nordkarelen, J. A. Früs, Christiania.
60. Forhandlinger i Videnskabs-Selskabet i Christiania, 1871, Christiania.
61. Nyt Magazin for Naturvidenskaberne, 1872, Christiania.
62. Beretning om den almindelige Udstilling for Tromso Stift, Christiania.
63. Bidrag til Kundskaben om Vegetationen i den lidt sydfor af Norge, Christiania.
64. Twenty-first, Twenty-second, and Twenty-third Annual Reports of the New York State Cabinet of Natural History, 1869, (Duplicate).
65. Twenty-fourth, Twenty-fifth, and Twenty-sixth Reports of the New York State Museum of Natural History, 1870, 1871, 1872.
66. Fifty-sixth Annual Report of the Trustees of the New York State Library, 1873.
67. American Journal of Science and Arts, December, 1873—November, 1874.
68. Journal of the Franklin Institute, 3 Nos.
69. Memoirs of the Boston Society of Natural History, vol. ii, pt. 2, No. 4; pt: 3, Nos. 1, 2, 3.
70. Proceedings of the Boston Society of Natural History, vol. xv, pts. 3, 4 vol. xvi, pts. 1, 2, 3, 4.
71. Sixth Annual Report of the Trustees of the Peabody Academy of Science, 1873.
72. Seventh Annual Report of the Trustees of the Peabody Institute.
73. Proceedings of the Academy of Natural Sciences, Philadelphia, 1873, October—December; 1874, January—September.

74. Annals of the Lyceum of Natural History, New York, 1873, January—June.
75. Historical Collections of the Essex Institute, vol. xii, pt. 1.
76. Bulletin " " " vol. v, 1-12.
77. Proceedings of the American Antiquarian Society, No. 61, 1873; No. 62, 1874.
78. Transactions of the Academy of Science, St. Louis, vol. iii, No. 1.
79. Bulletin of the Minnesota Academy of Natural Sciences, 1874.
80. Report of a Geological Reconnaissance of the State of Louisiana.
81. Report of Progress on the Explorations and Surveys of the Canadian Pacific Railway.
82. Maps and Charts on the Explorations and Surveys of the Canadian Pacific Railway.
83. Wicksteed's Table of Statutes of the Dominion of Canada, 1874.
84. Report of Progress of the Geological Survey of Canada, 1872-73.
85. Dawson's Report on the Tertiary Lignite Formation on the Forty-ninth Parallel.
86. The Canadian Naturalist, vol. vii, Nos. 4, 5, 6, Montreal.
87. Transactions Literary and Historical Society of Quebec, 1872-73.
88. " Nova Scotian Institute of Natural Science, Halifax, 1872-73.
89. The Canadian Entomologist, vol. vi, Nos. 1-10.
90. Report of the Entomological Society of the Province of Ontario, 1873.
91. The Pharmaceutical Journal, 1874, January—December.
92. The Journal of Education, 1874, January—November.
93. Wilson's Pamphlet on the Dominion of Canada and the Canadian Pacific Railway.

The following publications have been subscribed for by the Institute, and received during the year:—

The Edinburgh Review.
The Westminster Review.
The London Quarterly Review.
The British Quarterly Review.
The Contemporary Review.
The Fortnightly Review.
The Saturday Review.
Blackwood's Magazine.
The London Lancet.
The Medical Times and Gazette.
The British and Foreign Medico-Chirurgical Review.
The American Journal of Medical Sciences.
The Half-yearly Abstract of Medical Sciences.
The Medical News and Library.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—AUGUST, 1874.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	MEAN	Excess of Mean above aver'ge	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN	Rain in inches.	Snow in inches.
1	29.244	29.266	29.345	29.2870	68.6°	77.3°	63.2°	69.30°	+ 1.23°	.580	.409	.413	.452	82	44	71	64	W	N	N	N 39° W	9.0	9.6	14.0	8.95	10.11	...	...
2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	N	N	N 17 W	10.5	22.0	3.6	13.13	13.19	...	...
3	.705	.686	.750	.7198	54.2	67.6	57.8	60.30	— 7.62	.279	.246	.298	.275	66	36	62	54	N	N W	N	N 19 W	6.0	10.6	7.6	9.06	9.33	...	...
4	.810	.818	.837	.8288	56.4	70.1	56.0	61.73	— 6.12	.305	.384	.344	.358	67	52	77	66	N	S	S	S 33 W	7.7	12.5	1.0	0.48	5.78	...	...
5	.888	.775	.731	.7872	60.4	73.3	59.6	65.63	— 2.15	.366	.329	.401	.361	70	40	79	60	N	S	S E	S 9 E	2.6	10.5	0.9	0.91	4.50	...	...
6	.722	.658	.597	.6493	58.6	71.2	65.8	65.50	— 2.18	.342	.368	.453	.402	69	48	71	64	N E	E	E	N 87 E	2.2	9.2	0.2	4.61	4.98	...	...
7	.531	.475	.501	.4893	62.5	77.3	65.0	69.00	+ 1.43	.435	.568	.519	.528	77	61	84	75	Calm.	S	S E	S 35 E	0.0	7.5	1.1	1.57	2.45	.020	...
8	.449	.448	.487	.4660	62.2	75.5	69.0	69.55	+ 2.12	.464	.562	.386	.467	83	64	54	65	N	S	N	N 14 W	0.6	6.2	5.0	3.50	6.15	...	...
9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	S	N W	S 69 W	7.8	10.0	3.0	3.06	7.48	...	...
10	.457	.451	.519	.4768	64.0	74.4	65.4	68.77	+ 1.60	.519	.636	.581	.564	87	75	92	81	Calm.	S W	S E	S 29 W	0.0	9.0	0.4	2.44	3.09	.040	...
11	.553	.571	.536	.5492	63.2	78.0	70.8	70.98	+ 3.93	.557	.617	.640	.634	96	64	85	84	E	S E	E	S 71 E	2.8	7.3	2.6	4.18	4.46	...	...
12	.454	.432	.619	.5072	72.3	91.4	67.9	77.70	+10.80	.726	.738	.467	.616	91	50	68	66	S W	N W	N W	N 48 W	4.6	24.0	13.5	6.77	10.08	...	...
13	.697	.711	.743	.7187	63.2	72.6	63.2	66.72	— 0.03	.413	.457	.353	.412	71	57	61	63	N	S	N	N 12 E	6.0	8.0	12.0	2.82	7.38	...	...
14	.751	.721	.723	.7290	57.8	73.3	63.2	65.38	— 1.20	.309	.448	.320	.366	64	54	54	57	N	S E	Calm.	N 61 E	3.3	7.7	0.0	1.65	6.30	...	...
15	.731	.705	.739	.7275	55.7	77.7	65.8	67.17	+ 0.73	.369	.472	.286	.377	83	50	45	58	Calm.	S	N	N 18 W	0.0	7.5	5.0	1.35	3.82	...	...
16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	S E	E	S 74 E	3.2	6.1	2.8	1.96	4.16	...	...
17	.729	.607	.592	.6457	58.2	83.8	71.5	72.80	+ 6.73	.468	.465	.541	.491	96	40	70	64	Calm.	S	S W	S 21 W	0.0	17.8	3.4	7.18	7.48	...	...
18	.727	.745	.811	.7685	64.6	77.3	60.0	67.43	+ 1.52	.383	.355	.291	.329	63	37	56	50	N	S	N	N 26 W	5.4	6.0	3.0	5.32	7.57	...	...
19	.876	.786	.654	.7562	53.9	74.8	67.9	65.82	+ 0.13	.306	.455	.507	.428	74	53	74	67	S W	S E	Calm.	S 37 E	1.8	8.4	0.0	1.89	3.18	...	...
20	.588	.586	.637	.6055	69.0	82.4	70.1	74.43	+ 8.93	.575	.657	.504	.582	81	59	68	69	N	W	N	N 58 W	1.7	10.8	4.0	4.31	6.03	.110	...
21	.641	.559	.552	.5772	65.4	66.1	61.1	64.63	— 0.65	.539	.530	.479	.522	86	83	89	85	N E	N E	N E	N 59 E	4.0	7.1	4.8	4.98	5.81	.210	...
22	.616	.705	.709	.6787	59.3	68.7	58.2	62.00	— 3.05	.465	.316	.360	.373	92	45	74	69	N	S E	S E	S 88 E	8.3	14.0	1.8	4.27	6.78	...	...
23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	N E	N 87 E	4.8	13.2	6.8	5.33	6.22	...	...
24	.659	.681	.724	.6910	54.2	70.1	58.2	61.43	— 3.17	.335	.334	.282	.312	79	45	57	58	N E	S	S	S 49 E	1.0	9.0	1.5	2.20	5.27	...	...
25	.785	.798	.814	.7998	55.3	73.0	62.2	63.67	— 0.68	.374	.321	.426	.370	87	39	77	66	N	S	E	S 61 E	4.4	12.0	5.2	2.38	5.44	...	...
26	.840	.814	.793	.8183	56.4	73.0	61.8	65.05	— 0.95	.406	.321	.457	.403	89	40	82	68	N E	S E	E	S 71 E	3.7	10.2	4.0	3.96	5.57	...	...
27	.829	.785	.772	.7915	57.8	74.8	62.5	66.05	+ 2.22	.426	.375	.497	.449	89	43	87	72	N E	S E	E	S 78 E	4.3	8.3	3.0	3.22	5.12	...	...
28	.801	.758	.713	.7533	56.7	73.3	64.3	66.10	+ 2.53	.414	.382	.411	.405	90	46	68	66	N E	E	N E	N 86 E	3.8	8.4	5.7	4.60	5.40	...	...
29	.676	.608	.535	.5967	58.6	75.2	63.2	67.40	+ 4.10	.391	.312	.475	.407	79	36	82	64	N E	S E	N E	N 81 E	5.5	8.4	6.4	4.48	5.67	...	...
30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	S	E	S 83 E	5.0	4.5	4.0	1.67	3.82	...	...
31	.645	.662	.787	.7065	63.6	79.5	63.2	69.50	+ 6.70	.420	.339	.413	.385	71	34	71	56	N	N W	N	N 2 W	10.0	12.6	10.6	8.17	8.30	...	...
	29.6694	29.6466	29.6623	29.6587	60.47	75.07	63.73	67.08	+ 1.12	.429	.438	.427	.433	80	50	71	66	.....	.....	.....	.....	4.19	10.59	4.42	...	6.16	0.380	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer..... 29.892 at 8 a.m. on 19th. } Monthly range
Lowest Barometer..... 29.244 at 6 a.m. on 1st. } 0.648.

Self-registering Ther.
- Maximum temperature .....95°0 on 12th. } Monthly range 47°0.
- Minimum temperature.....48°0 on 3rd. }
- Mean maximum temperature .....77°40. } Mean daily range 21°43.
- Mean minimum temperature .....55°97. }
- Greatest daily range.....30°5 from 2 p.m. to midn't, of 12th.
- Least daily range.....13°0 from a.m. to p.m. on 21st.

Warmest day .....12th; mean temperature .....77°70 } Difference=16°27
Coldest day.....24th; mean temperature .....61°43 }

Maximum Radiation { Solar .....143°5 on 12th. } Monthly range 108.7.
Maximum Radiation { Terrestrial ..... 34°8 on 3rd. }

Aurora observed on 2 nights, viz., 12th and 14th.
Possible to see Aurora on 24 nights; impossible on 7 nights.
Raining on 4 days; depth 0.380 inches; duration of fall 7.2 hours.
Mean of cloudiness, 0.39.

WIND.

Resultant direction N. 23° E.; resultant velocity 0.70 miles.
Mean velocity 6.16 miles per hour.
Maximum velocity 27.0 miles, from 3.30 to 4.30 p.m. of 12th.
Most windy day 2nd; mean velocity 13.19 miles per hour.
Least windy day 7th; mean velocity 2.45 miles per hour.
Most windy hour 2 p.m.; mean velocity 10.59 miles per hour.
Least windy hour 7 p.m.; mean velocity 4.02 miles per hour.

Lightning on 6th, 7th, and 10th.
Thunder on 7th, 10th and 21st.
Dew on 6 mornings.
Fog on 11th and 17th.
Solar halo on 5th; Lunar on 29th.
Swallows left neighbourhood about 25th.
It will be seen from the comparative table that only about one-eighth part of the usual rainfall fell during August, 1874. Root crops and grass suffering severely from the drought.

COMPARATIVE TABLE FOR AUGUST.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1846	68.4	+ 2.2	86.4	49.5	36.9	9	1.770	...	...	...	...	0.17 lbs
1847	65.1	— 1.1	82.6	44.6	38.0	10	2.140	...	...	...	...	0.19
1848	69.2	+ 3.0	87.0	48.7	38.3	8	0.855	...	...	S 21 E	0.98	4.55mls
1849	66.3	+ 0.1	79.0	49.0	30.0	10	4.970	...	...	N 71 W	0.60	3.76
1850	66.8	+ 0.6	85.0	41.0	44.0	13	4.355	...	...	N 1 E	0.35	4.46
1851	63.6	— 2.6	79.8	42.0	37.8	10	1.360	...	...	N 63 W	0.40	4.63
1852	65.9	— 0.3	81.2	45.8	35.4	9	2.695	...	...	N 70 E	0.56	3.30
1853	68.6	+ 2.4	94.9	42·5	52.4	11	2.575	...	...	S 36 E	0.30	4.26
1854	68.0	+ 1.8	99.2	45.6	53.6	5	0.455	...	...	N 64 W	1.76	4.60
1855	64.1	— 2.1	83.5	40.0	43.5	7	1.455	...	...	N 63 W	1.04	6.97
1856	63.6	— 2.6	82.7	41.5	41.2	12	1.680	...	...	N 50 W	2.88	7.03
1857	65.3	— 0.9	88.2	46.0	42.2	13	5.265	...	...	N 77 W	1.51	6.36
1858	67.6	+ 1.4	84.0	44.0	40.0	11	3.890	...	...	N 69 W	1.57	6.50
1859	66.6	+ 0.4	82.2	45.8	36.4	11	3.900	...	...	N 36 W	1.62	5.96
1860	64.5	— 1.7	87.0	46.8	40.2	14	3.405	...	...	N 70 W	1.83	5.80
1861	65.5	— 0.7	85.2	47.0	38.2	15	2.953	...	...	N 8 E	0.46	4.21
1862	67.6	+ 1.4	89.5	42.8	46.7	15	3.483	...	...	N 78 W	1.67	5.96
1863	66.6	+ 0.4	88.0	42.4	45.6	12	2.208	...	...	S 61 W	1.80	4.89
1864	68.6	+ 2.4	94.0	47.0	47.0	16	5.060	...	...	N 70 W	1.38	4.75
1865	65.2	— 1.0	87.8	44.4	43.4	8	1.990	...	...	N 60 W	1.55	5.07
1866	60.8	— 5.4	77.0	42.4	34.6	14	4.457	...	...	N 59 W	2.58	5.16
1867	68.1	+ 1.9	95.2	42.2	53.0	10	2.440	...	...	N 76 W	1.25	4.52
1868	67.2	+ 1.0	84.4	46.8	37.6	13	1.562	...	...	S 58 W	1.01	6.15
1869	63.6	— 2.6	89.0	43.5	45.5	11	4.273	...	...	N 42 W	1.98	5.13
1870	67.1	+ 0.9	84.0	40.0	44.0	14	3.422	...	...	N 75 W	1.80	5.92
1871	67.4	+ 1.2	89.5	46.0	43.5	8	2.806	...	...	N 52 W	1.09	6.86
1872	69.5	+ 3.3	91.8	51.0	40.8	19	2.405	...	...	N 51 W	1.43	3.73
1873	66.6	+ 0.4	85.0	46.4	38 6	12	1.913	...	...	N 84 E	1.35	5.56
1874	67.1	+ 0.9	95.0	48.0	47.0	4	0.380	...	...	N 23 E	0.70	6.16
Res'lts to 1873.	66.20	...	86.54	44.81	41.73	11.09	2.969	...	...	N 64 W	1.02	5.23
Excess for '74.	+ 0.88	...	+ 8.46	+ 3.19	+ 5.27	— 7.09	— 2.589	...	...	...	...	+ 0.93

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—SEPTEMBER, 1874.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Result't.	Velocity of the Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M	M'N.	6 A.M.	2 P.M	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.863	29.847	29.799	29.8323	57.1°	75.9°	58.9°	65.25°	+ 2.70°	.296	.244	.316	.318	63	27	63	53	N	S	Calm.	S 4° W	3.0	10.8	0.0	1.16	3.58	...	...
2	.770	.659	.582	.6593	58.2	81.3	68.3	69.57	+ 7.32	.359	.437	.542	.444	74	41	78	63	N W	S	S W	S 35 W	1.0	13.4	2.0	4.49	6.13	...	...
3	.542	.703	.852	.7035	66.1	59.6	52.4	58.88	— 3.10	.545	.425	.303	.411	85	84	77	60	S W	N	N	N 10 W	2.2	8.0	5.2	4.66	6.30	.130	...
4	.889	.858	.807	.8488	47.0	62.2	55.3	56.63	— 5.05	.264	.333	.353	.329	82	59	80	72	N E	E	N E	N 72 E	6.8	9.0	4.1	5.12	6.67	...	...
5	.743	.630	.600	.6573	57.8	71.5	66.5	65.40	+ 4.02	.449	.588	.593	.534	94	76	91	85	N E	E	S W	S 43 E	2.2	4.5	9.2	2.71	6.48	.080	...
6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	W	W	S 83 W	7.2	11.7	4.4	7.50	8.14	...	...
7	.774	.705	.629	.6918	51.3	72.6	62.5	64.23	+ 3.52	.317	.375	.472	.410	85	46	83	70	N	S	E	S 72 E	3.2	4.8	3.8	1.95	3.93	...	...
8	.602	.652	.689	.6523	60.7	74.4	61.8	66.32	+ 5.97	.459	.434	.433	.453	86	51	78	72	N	S E	Calm.	S 73 E	2.0	7.2	0.0	2.37	3.48	...	...
9	.738	.728	.705	.7220	58.9	79.1	66.5	69.13	+ 9.15	.422	.573	.539	.506	85	58	83	72	E	S	S W	S 10 E	1.0	9.6	2.4	2.77	3.26	...	...
10	.701	.640	.618	.6433	62.5	87.4	69.4	74.37	+14.77	.472	.589	.630	.573	83	46	88	70	S W	S W	S W	S 23 W	1.2	8.0	1.0	2.79	2.82	...	...
11	.623	.586	.582	.5982	66.5	84.9	75.9	75.65	+16.45	.566	.586	.454	.518	87	49	50	60	S W	S	N	S 32 W	1.0	6.6	2.4	2.21	4.56	...	...
12	.613	.683	.700	.6705	64.7	72.3	66.5	67 65	+ 8.83	.498	.531	.512	.500	81	67	79	74	N E	E	E	N 84 E	2.0	13.5	9.8	6.75	7.87	...	...
13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	E	N	N 72 E	5.0	7.0	3.6	4.10	5.28	...	...
14	.757	.671	.601	.6710	62.2	83.8	74.4	74.53	+16.52	.488	.602	.563	.573	87	52	66	68	N	S	S	S 13 W	0.0	12.0	4.4	5.73	6.13	...	...
15	.580	.594	.722	.6368	70.8	65.0	60.7	65.52	+ 7.90	.626	.546	.422	.522	83	89	80	83	S	N	N	West.	8.7	13.6	12.6	3.72	10.59	.164	...
16	.789	.817	.829	.8168	54.6	64.3	57.1	59.03	+ 1.82	.362	.399	.362	.376	85	66	77	75	N	N E	N E	N 29 E	9.1	10.7	9.0	7.45	8.48	...	...
17	.786	.712	.703	.7292	57.1	62.7	64.7	61.83	+ 5.05	.351	.562	.498	.489	75	99	81	87	N E	E	S E	N 82 E	7.0	11.0	13.0	9.16	10.36	.370	...
18	.707	.700	.722	.7083	62.5	73.3	64.3	66.00	+ 9.63	.526	.577	.542	.529	93	70	90	83	S E	S	E	S 60 E	3.6	6.0	7.6	5.17	5.68	.020	...
19	.671	.493	.427	.5265	64.3	73.3	67.6	68.82	+12.88	.582	.622	.640	.606	96	76	95	87	E	S E	S	S 42 E	6.1	10.6	19.0	7.80	10.66	.420	...
20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	W	W	N 87 W	4.0	15.2	4.0	8.16	8.58	Inap.	...
21	.840	.812	.812	.8240	44.8	61.8	48.5	52.12	— 3.00	.271	.335	.273	.286	91	60	80	74	N W	S	N	N 89 W	3.5	1.5	0.8	1.46	3.75	...	...
22	.784	.752	.753	.7620	43.0	61.4	53.5	54.03	+ 0.65	.247	.367	.322	.321	89	67	78	76	N	S W	S W	S 38 W	1.8	13.6	4.3	4.28	5.09	.010	...
23	.800	.789	.777	.7885	47.7	67.2	56.8	57.95	+ 3.68	.314	.373	.439	.388	94	56	94	1	W	S E	Calm.	S 41 E	0.5	8.6	0.0	2.13	3.58	...	...
24	.788	.782	.789	.7853	51.3	70.8	62.5	62.50	+ 8.67	.317	.522	.423	.424	84	69	75	74	E	S	S W	S 18 E	2.4	6.2	1.8	1.35	2.23	...	...
25	.823	.790	.761	.7880	52.4	76.6	62.2	64.88	+11.47	.358	.515	.402	.415	91	56	72	68	W	S	N W	S 38 W	2.9	9.3	5.2	2.85	3.85	...	...
26	.722	.613	.503	.6015	56.8	71.5	68.7	66.37	+13.38	.413	.458	.510	.483	89	60	72	75	N E	E	S	S 67 E	4.8	8.0	11.4	4.35	5.65	...	...
27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S	W	N W	S 25 W	5.2	4.2	1.6	3.02	4.32	.340	...
28	.401	.396	.426	.4045	59.6	61.4	57.8	59.13	+ 6.95	.483	.450	.376	.424	95	83	79	84	N	N	N W	N 7 W	4.0	3.0	13.2	5.17	5.45	.020	...
29	.412	.345	.316	.3520	51.0	65.4	48.8	55.18	+ 3.43	.312	.325	.278	.302	82	51	81	70	N	S W	W	N 39 W	11.0	7.6	3.5	7.33	8.32	Inap.	...
30	.294	.368	.483	.3897	47.0	50.3	42.7	45.63	— 5.75	.244	.202	.206	.208	76	55	74	68	N W	N W	W	N 39 W	22.5	19.1	6.5	17.15	17.70	...	...
	29.6928	29.6663	29.6610	29.6717	56.77	70.38	61.32	6 .33	+ 6.08	.405	.460	.439	.436	85	62	79	74	.....	.....	.....	...	4.50	9.14	5.53	...	6.30	1.554	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer..... 29.921 at 8 a.m. on 4th } Monthly range
Lowest Barometer.....29.274 at midnight on 29th } 0.647.

Self-registering Ther.
- Maximum temperature..... 88°6 on 10th } Monthly range
- Minimum temperature..... 39°5 on 30th } 49°1
- Mean maximum temperature.....70°22 } Mean daily range
- Mean minimum temperature.....51°63 } 18°.59
- Greatest daily range .....28°1 from a.m. to p.m. of 10th.
- Least daily range ..... 7°8 from noon to midnight of 28th.

Warmest day .....11th; mean temperature.....75°65 } Difference=30°02.
Coldest day .....30th; mean temperature.....45°63 }

Maximum Radiation
- Solar .....135°5 on 10th } Monthly range
- Terrestrial .....31°0 on 21st & 22nd } 104°5.

Aurora observed on 2 nights, viz., 5th and 12th.

Possible to see Aurora on 25 nights; impossible on 5 nights.

Raining on 11 days; depth, 1.554 inches; duration of fall, 32.4 hours.

Mean of cloudiness, 0.49.

WIND.

Resultant direction, S. 14° E.; resultant velocity, 0.09 miles.

Mean velocity, 6.30 miles per hour.

Maximum velocity, 26.0 miles, from 8 to 9 a.m. of 30th.

Most windy day, 30th; mean velocity, 17.70 miles per hour.

Least windy day, 24th; mean velocity, 2.23 miles per hour.

Most windy hour, 11 a.m.; mean velocity, 9.23 miles per hour.

Least windy hour, 2 a.m.; mean velocity, 4.15 miles per hour.

Dew 8 times during the month.

Frost on the night of 30th.

Lunar haloes on 25th, 26th, 28th.

COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity	Mean Velocity.
	°	°	°	°	°					°		
1846	63.6	+ 5.6	84.3	37.3	47.0	11	4.595	...	...	...	...	0.33 lbs.
1847	55.6	— 2.4	74.5	35.0	39.5	15	6.665	...	...	...	...	0.33
1848	54.2	— 3.8	80.4	28.1	52.3	11	3.115	...	...	N 71 W	2.38	5.81 mls.
1849	58.2	+ 0.2	80.1	32.7	47.4	9	1.480	...	...	N 75 W	0.69	4.23
1850	56.5	— 1.5	76.0	29.5	46.5	11	1.735	...	...	S 65 W	1.02	4.78
1851	60.0	+ 2.0	86.3	32.0	54.3	9	2.665	...	...	N 14 E	1.03	5.45
1852	57.5	— 0.5	81.8	35.8	46.0	10	3.630	...	...	N 77 W	0.53	4.60
1853	58.8	+ 0.8	85.5	33.9	51.6	12	5.140	...	...	North	1.06	4.33
1854	61.0	+ 3.0	93.6	35.8	57.8	14	5.375	...	...	N 22 W	1.33	4.04
1855	59.5	+ 1.5	82.6	33.0	49.6	12	5.585	...	...	N 20 E	1.29	7.61
1856	57.1	— 0.9	78.4	35.0	43.4	13	4.105	...	...	S 79 W	1.98	6.53
1857	58.6	+ 0.6	82.0	34.1	47.9	11	2.640	...	...	N 68 W	1.61	6.55
1858	59.1	+ 1.1	81.4	35.6	45.8	8	0.735	...	...	S 74 W	1.53	5.69
1859	55.2	— 2.8	75.4	35.7	39.7	15	3.525	...	...	N 44 W	1.60	6.36
1860	55.3	— 2.7	75.8	28.7	47.1	14	1.959	...	...	N 71 W	2.63	5.79
1861	59.1	+ 1.1	78.8	37.1	41.7	17	3.607	...	...	N 71 W	1.39	4.81
1862	59.6	+ 1.6	79.4	39.0	40.4	9	2.344	...	...	N 59 W	1.07	5.11
1863	55.9	— 2.1	80.0	31.4	48.6	8	1.235	...	...	N 16 W	1.92	6.46
1864	56.4	— 1.6	73.0	37.8	35.2	11	2.508	...	...	N 38 W	1.89	7.06
1865	64.5	+ 6.5	90.5	42.0	48.5	12	2.450	...	...	S 56 E	0.47	4.12
1866	55.2	— 2.8	80.0	34.4	45.6	15	5.657	...	...	N 33 W	1.45	4.63
1867	57.9	— 0.1	87.0	31.8	55.2	9	1.226	...	...	N 37 W	1.48	5.43
1868	56.6	— 1.4	75.5	36.0	39.5	16	4.239	...	...	N 74 W	0.88	4.68
1869	60.7	+ 2.7	81.0	34.4	46.6	8	4.027	...	...	N 53 W	1.16	4.89
1870	61.8	+ 3.8	78.0	45.8	32.2	11	6.794	...	...	N 29 E	2.26	5.04
1871	54.8	— 3.2	81.8	34.0	47.8	8	1.290	...	...	N 74 W	1.72	5.50
1872	59.1	+ 1.1	84.4	38.2	46.2	16	2.526	...	...	N 79 W	1.47	5.24
1873	57.3	— 0.7	79.0	33.5	45.5	14	3.020	...	...	N 81 W	2.92	7.39
1874	63.3	+ 5.3	88.6	39.5	49.1	11	1.554	...	...	S 14 E	0.09	6.30
Res'lts to 1873.	58.05	...	80.95	34.91	46.04	11.29	3.659	...	...	N 56 W	1.13	5.50
Excess for 1874	+ 5.28	...	+ 7.65	+ 4.59	+ 3.06	— 0.29	+ 2.105	...	...	...	...	+ 0.80

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—OCTOBER, 1874.

Latitude—43° 39′ 4″ *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	ME'N.	Excess of Mean above a v'rag	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN.	Rain in inches.	Snow in inches.
					°	°	°	°	°												°							
1	29.476	29.421	29.167	29.3322	41.6	52.8	55.0	50.75	— 0.23	.219	.267	.414	.300	83	66	95	79	W	S W	S W	S 69 W	6.4	5.2	14.2	8.19	9.93	.480	...
2	.137	.195	.594	.3947	50.6	52.8	43.9	48.78	— 1.80	.265	.240	.235	.245	72	60	82	71	W	N W	N W	N 69 W	12.4	26.8	1.6	13.47	14.84	...	...
3	.694	.704	.908	.7938	42.3	51.0	40.9	45.03	— 5.20	.239	.211	.191	.211	88	56	75	71	N	N	N	N 12 W	1.5	11.9	3.2	5.11	5.60	.010	...
4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	N	N	N 7 W	4.2	8.0	4.5	6.12	6.24	...	...
5	30.003	.995	.708	.8425	35.1	54.2	51.0	47.78	— 1.73	.174	.279	.312	.261	85	66	83	77	N	S E	S E	S 49 E	4.0	5.8	4.4	1.46	4.08	.020	...
6	29.609	.601	.692	.6400	50.6	51.0	50.3	50.62	+ 1.48	.341	.356	.331	.341	92	95	91	92	E	S E	N E	S 84 E	5.2	10.6	9.2	4.45	6.09	.438	...
7	.746	.796	.785	.7792	49.9	53.9	53.1	52.58	+ 3.86	.316	.361	.393	.358	87	86	97	90	N E	N E	N E	N 54 E	4.0	11.2	4.2	6.37	6.42	.070	...
8	.709	.709	.485	.5907	52.4	58.6	55.3	55.55	+ 7.10	.391	.403	.409	.405	99	82	93	92	N	E	N W	N 26 E	1.0	2.9	4.5	1.46	2.32	.010	...
9	.465	.505	.400	.4327	51.7	60.0	52.4	54.40	+ 6.27	.337	.396	.358	.348	87	76	91	82	W	S W	S W	N 81 W	8.5	7.0	1.0	5.44	6.02	.040	...
10	.177	.138	.185	.1315	53.5	56.0	50.3	52.97	+ 5.15	.399	.399	.300	.355	97	89	82	88	S	S	W	S 46 W	7.4	6.3	9.9	6.41	6.96	.250	...
11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	W	W	S 83 W	2.8	9.5	1.2	7.88	8.15	...	...
12	.670	.717	.922	.8090	42.0	42.3	36.2	39.87	— 7.32	.224	.202	.193	.199	82	75	90	81	N	N W	N	N 23 W	3.8	13.5	16.5	9.88	10.29	Inap.	...
13	.937	.953	.979	.9640	34.8	38.4	36.6	36.70	—10.29	.186	.139	.179	.169	92	60	83	78	N W	N W	N W	N 56 W	7.8	11.0	9.0	7.57	7.75	...	Inap.
14	.983	30.003	.949	.9633	36.2	46.3	36.9	39.32	— 7.28	.176	.150	.166	.170	82	47	76	72	N W	S	S W	S 35 W	0.8	7.0	1.6	1.51	2.91	...	...
15	.963	29.977	.850	.8948	30.8	53.9	40.9	42.03	— 4.32	.155	.283	.228	.220	90	68	89	81	Calm.	S	W	S 32 W	0.0	5.4	1.0	2.05	2.73	..	...
16	.825	.821	.607	.7047	35.5	58.6	49.2	48.47	+ 2.40	.185	.299	.264	.251	89	60	75	74	W	S	W	S 50 W	2.0	5.0	3.4	2.28	2.80	...	...
17	.491	.457	.363	.3865	40.5	60.7	47.7	50.18	+ 4.40	.225	.292	.225	.251	89	55	67	70	Calm.	W	W	S 86 W	0.0	19.0	11.0	7.43	7.90	...	...
18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	N	Calm.	N 30 W	3.0	20.0	0.0	9.46	10.04	...	...
19	.662	.683	.668	.6667	25.4	52.1	40.9	40.05	— 5.22	.125	.146	.211	.168	91	37	82	71	N W	W	Calm.	N 56 W	2.7	9.0	0.0	4.04	4.48	...	...
20	.650	.669	.792	.6983	44.5	60.0	53.9	52.60	+ 7.55	.228	.281	.339	.281	77	55	82	71	S W	S W	N W	S 59 W	8.2	10.2	4.2	5.10	6.56	...	...
21	30.008	30.033	30.034	30.0275	44.8	47.7	36.5	42.83	+ 1.97	.261	.255	.163	.225	88	77	76	80	N E	S E	N	N 46 E	8.2	4.6	4.6	4.16	5.47	...	...
22	30.003	30.015	29.948	29·9715	30.8	44.0	40.2	39.13	+ 5.45	.154	.243	.237	.213	90	84	95	88	Calm.	S	N	N 42 W	0.0	0.6	2.0	0.34	1.24	...	...
23	29.935	29.949	.903	.9135	42.3	53.9	49.2	48.75	+ 4.43	.256	.263	.264	.269	95	64	75	79	N E	E	N E	N 59 E	5.0	11.8	2.8	5.96	6.43	...	...
24	.930	.954	.954	.9473	46.3	58.9	52.8	51.93	+ 7.88	.291	.339	.332	.314	93	68	83	82	N E	E	Calm.	N 73 E	3.4	3.7	0.0	2.32	2.98	...	...
25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	S E	N E	S 85 E	1.2	4.4	2.2	1.99	2.35	...	...
26	.840	.840	.645	.7257	45.6	64.3	54.2	54.95	+11.37	.291	.423	.401	.378	95	70	95	87	Calm.	S W	W	S 34 W	0.0	8.3	0.6	3.00	3.57	.095	...
27	.605	.635	.635	.6145	51.7	58.9	50.3	53.08	+ 9.73	.378	.305	.269	.312	99	62	74	78	W	W	W	N 65 W	2.0	20.8	2.6	8.94	9.14	...	...
28	.648	.647	.467	.5558	46.6	50.3	48.8	48.80	+ 5.70	.298	.269	.278	.285	94	73	81	83	N	S E	E	S 67 E	1.4	4.2	12.5	1.94	4.20	.010	...
29	.217	.213	.360	.2345	50.6	64.9	47.7	54.32	+11.45	.327	.282	.204	.269	88	46	61	65	E	W	S W	S 59 W	4.0	20.7	12.2	6.78	12.85	...	...
30	.438	.478	.543	.503	45.2	44.8	39.4	42.30	— 0.30	.218	.224	.193	.204	72	75	80	75	S W	W	W	S 71 W	9.0	13.0	13.5	11.98	12.06	Inap.	...
31	.520	.522	.590	.5463	34.4	44.1	35.1	37.80	— 4.62	.174	.195	.182	.190	87	68	89	84	Calm.	N W	S W	N 70 W	0.0	9.1	10.8	4.88	5.85	...	Inap.
	29.6793	29.6930	29.6716	29.6690	42.80	53.13	46.25	47.47	+ 1.18	.253	.278	.269	.266	88	67	83	79	.....	.....	.....	.....	3.87	9.89	5.43	.....	6.40	1.418	Inap.

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M. and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.040 at 2 p.m. on 21st. } Monthly range
Lowest Barometer .....29.041 at 2 p.m. on 19th. } 0.999.

Self-registering Ther.
- Maximum temperature.....67.0 on 29th. } Monthly range
- Minimum temperature ....24.8 on 19th. } 42°2
- Mean maximum temperature.....55°02 } Mean daily range
- Mean minimum temperature.....38°97 } 16°05
- Greatest daily range.....30°6 from a.m. to p.m. of 19th.
- Least daily range ..... 5°2 from a.m. to p.m. of 13th.

Warmest day..... 8th; mean temperature 55°55 } Difference=18°85
Coldest day.....15th; mean temperature 36°70 }

Maximum { Solar.....112°5 on 4th, 11th, 14th. } Monthly range
Radiation { Terrestrial..... 12°0 on 19th. } 100°5

Aurora observed on 5 nights, viz: 3rd, 4th, 12th, 15th and 16th.

Possible to see Aurora on 13 nights; impossible on 18 nights.

Raining on 11 days; depth, 1.418 inches; duration of fall, 29.2 hours.

Snowing on 2 days; depth, inapp.; duration of fall, inappreciable.

Mean of cloudiness, 0.76.

WIND.

Resultant direction, N. 70° W.; resultant velocity, 2.75 miles.

Mean velocity, 6.40 miles per hour.

Maximum velocity, 30.0 miles per hour from noon to 1 p.m. of 2nd.

Most windy day, 2nd; mean velocity, 14.84 miles per hour.

Least windy day, 22nd; mean velocity, 1.24 miles per hour.

Most windy hour, 1 p.m.; mean velocity, 10.72 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 3.98 miles per hour.

Fog on 8th, 22nd, 26th, 27th and 29th.

Dew on 3 mornings.

Lunar halo on 23rd.

Thunder storm on 10th.

COMPARATIVE TABLE FOR OCTOBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
			°	°	°					°		
1846	44.6	— 1.2	70.1	20.	49.4	14	4.180	2	Inap.	...	...	0.44 lbs.
1847	44.0	— 1.8	64.6	20.4	44.2	13	4.390	2	Inap.	...	...	0.19
1848	46.3	+ 0.5	61.8	24.5	37.3	11	1.550	0	0.0	N 54 W	1.24	4.60mls.
1849	45.3	— 0.5	58.9	24.2	34.7	13	5.965	1	Inap.	N 12 W	1.27	7.76
1850	45.4	— 0.4	66.7	22.4	44.3	10	2.085	0	0.0	N 66 W	1.10	5.30
1851	47.4	+ 1.6	66.2	25.2	41.0	10	1.680	2	0.3	S 72 W	1.06	4.39
1852	48.0	+ 2.2	70.7	23.8	46.9	12	5.280	0	0.0	N 5 E	1.19	4.47
1853	44.4	— 1.4	64.7	23.4	41.3	10	0.875	2	Inap.	S 88 W	1.74	4.77
1854	49.5	+ 3.7	75.4	26.4	49.0	15	1.495	3	Inap.	N 45 W	1.52	4.57
1855	45.4	— 0.4	68.0	22.6	45.4	14	2.485	5	0.8	N 82 W	4.91	9.88
1856	45.3	— 0.5	71.4	23.0	48.4	10	0.875	2	0.1	N 76 W	2.15	6.07
1857	45.4	— 0.4	64.0	26.5	37.5	10	1.040	2	0.2	N 19 W	2.93	6.24
1858	48.8	+ 3.0	76.3	31.5	44.8	17	1.797	1	Inap	N 34 W	0.36	5.96
1859	43.0	— 2.8	69.8	22.3	47.5	11	0.940	4	Inap.	N 68 W	5.04	8.12
1860	47.3	+ 1.5	68.0	28.4	39.6	15	1.618	1	Inap.	N 9 W	2.00	6.93
1861	48.7	+ 2.9	71.0	29.0	42.0	15	1.993	1	Inap.	N 61 W	1.06	5.96
1862	48.7	+ 2.9	76.6	26.2	50.4	19	2.684	2	0.5	N 78 W	2.89	6.53
1863	45.9	+ 0.1	66.4	30.5	35.9	16	2.522	0	0.0	S 71 W	0.48	6.16
1864	45.2	— 0.6	67.0	28.0	39.0	22	3.321	1	Inap	N 60 W	3.17	6.66
1865	44.5	— 1.3	71.4	21.6	49.8	17	2.705	3	4.5	N 36 W	3.15	7.26
1866	49.1	+ 3.3	71.0	31.8	39.2	11	2.470	1	Inap.	N 30 W	0.84	5.53
1867	49.9	+ 4.1	75.4	31.0	44.4	11	1.970	0	0.0	N 45 W	1.51	5.73
1868	42.4	— 3.4	67.6	24.0	43.6	10	1.365	2	2.0	N 89 W	1.27	7.10
1869	42.3	— 3.5	69.8	18.7	51.1	8	0.962	7	2.3	N 59 W	3.72	6.73
1870	50.0	+ 4.2	68.5	30.2	38.3	16	2.690	0	0.0	N 85 W	1.86	7.11
1871	48.3	+ 2.5	72.2	28.6	43.6	13	1.185	0	0.0	S 66 W	3.75	7.84
1872	45.6	— 0.2	70.0	25.2	44.8	14	3.288	1	Inap.	N 18 W	2.22	4.59
1873	45.7	— 0.1	69.2	24.2	45.0	13	2.155	3	0.2	West.	1.77	7.81
1874	47.5	+ 1.7	69.0	24.8	42.2	11	1.418	2	Inap.	N 70 W	2.75	6.40
Res'lts to 1873.	45.85	.....	69.02	25.51	43.51	12.56	2.409	1.82	0.82	N 63 W	1.80	6.20
Excess for '74.	+ 1.62	.....	— 2.02	— 0.71	— 1.31	— 1.56	— 0.991	+ 0.18	— 0.82	...	...	+ 0.20

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—NOVEMBER, 1874.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Relative Humidity.				Direction of Wind.			Resultant.	Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Re-sult't	MEAN		
					°	°	°	°	°												°							
1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	S W	W	S 61 W	11.0	10.0	3.3	8.79	8.81	...	Inap.
2	29.796	29.776	29.756	29.7753	35.1	42.7	32.9	36.37	— 5 55	.165	.179	.147	.160	80	64	77	74	Calm.	S E	Calm.	S 19 E	0.0	9.8	0.0	2.10	2.48	...	...
3	.734	.740	.799	.7678	30.8	51.3	43.0	40.92	— 0.77	.149	.275	.238	.212	86	73	86	82	Calm.	S W	Calm.	S 38 W	0.0	13.2	0.0	4.58	4.63	...	...
4	.824	.747	.688	.7468	34.0	49.2	37.3	39.82	— 1.60	180	.254	.203	.208	91	73	91	85	Calm.	S E	Calm.	S 25 E	0.0	6.0	0.0	1.69	1.73	...	...
5	.552	.513	.548	.5395	47.0	49.5	51.0	49.00	+ 7.85	.273	.332	.321	.306	85	93	86	88	S W	S W	S W	S 31 W	5.6	7.6	3.6	6.16	6.47	.250	...
6	.730	.814	.994	.8617	43.4	57.8	35.8	45.20	+ 4.30	.251	.242	.173	.212	89	50	83	72	S W	W	Calm.	WEST.	4.0	17.3	0.0	10.03	10.27	...	...
7	.990	.944	.783	.8937	35.1	47.4	43.0	41.55	+ 0.97	.182	.217	.256	.221	89	66	92	84	N E	E	E	N 84 E	3.4	10.0	1.4	4.16	4.51	...	...
8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	E	S W	W	S 41 W	2.0	14.7	3.4	5.28	6.13	Inap.	...
9	.555	.517	.611	.5630	43.0	54.8	43.4	47.27	+ 7.27	.256	.251	.196	.233	93	58	70	73	N W	W	W	S 84 W	3.0	14.4	5.0	5.37	6.00	...	...
10	.609	.381	.403	.4630	38.0	45.6	38.0	40.95	+ 1.28	.194	.252	.212	.218	85	82	92	84	N	E	W	N 71 E	2.0	12.4	9.5	4.52	6.03	...	...
11	.511	.658	.776	.6652	39.8	40.5	34.0	36.62	— 2.68	.216	.137	.119	.145	88	54	61	66	W	W	W	N 72 W	18.6	26.4	7.6	16.18	16.56	...	...
12	.844	.885	.949	.9038	27.2	33.3	26.4	29.20	— 9.77	.132	.124	.112	.124	89	64	79	77	N W	N W	W	N 46 W	3.8	14.6	1.0	6.30	6.52	...	Inap.
13	30.054	30.108	30.207	30.1365	20.7	29.7	21.8	23.95	—14.65	.096	.090	.092	.091	88	54	79	72	N W	N W	Calm.	N 28 W	8.0	8.5	0.0	4.84	4.86	...	...
14	30.279	30.182	29.960	30.1302	19.2	32.2	32.9	28.18	—10.05	.089	.102	.147	.117	87	57	78	75	N E	E	S E	S 79 E	3.4	7.0	13.6	4.94	7.76	Inap.	Inap.
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	S W	W	Calm.	S 78 W	1.0	16.7	0.0	4.42	7.65	.015	...
16	30.154	30.132	.984	30.0778	29.7	42.0	40.9	37.02	— 0.43	.154	.177	.220	.186	94	66	86	84	Calm.	E	E	N 88 E	0.0	7.8	9.0	3.98	4.06	...	...
17	29.680	29.639	.828	29.7265	40.9	49.2	44.1	44.43	+ 7.42	.239	.325	.214	.255	94	93	74	86	E	Calm.	N W	N 41 W	1.5	0.0	8.5	1.70	7.26	.250	...
18	29.939	.993	30.028	.9948	36.9	32.6	26.1	31.93	— 4.67	.192	.113	.123	.141	87	60	88	77	N W	N	N W	N 40 W	13.1	9.8	5.0	8.43	8.87	...	...
19	.924	.830	29.632	.7817	28.6	33.7	25.0	29.45	— 6.72	.138	.101	.102	.112	87	52	75	69	W	W	N	N 70 W	3.0	8.0	4.6	4.35	4.66	...	...
20	.295	.102	.190	.1893	31.9	32.2	29.7	30.97	— 4.75	.165	.162	.147	.154	92	89	89	89	N E	W	W	N 57 W	4.8	5.5	8.6	3.34	6.91	...	2.2
21	.300	.388	.589	.4445	29.0	31.9	29.3	29.78	— 5.50	.147	.128	.129	.136	92	71	79	82	S W	W	W	S 82 W	15.8	11.0	7.4	10.44	10.90	...	0.1
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N E	E	E	N 80 E	6.4	20.8	17.8	13.31	13.85	Inap.	1.0
23	28.829	28.598	28.723	28.7147	38.4	45.6	34.7	38.53	+ 4.17	.215	.195	.171	.191	92	64	85	81	E	S W	S W	S 12 W	12.2	21.1	18.0	6.25	16.73	.420	...
24	28.898	29.090	29.285	29.1162	27.9	29.3	26.5	27.23	— 6.67	.134	.114	.126	.122	88	71	88	83	S W	W	W	S 71 W	23.5	21.0	7.0	16.53	17.14	...	0.5
25	29.439	.523	.603	.5327	20.7	27.9	27.2	25.32	— 8.08	.092	.090	.104	.096	82	58	71	70	N W	W	W	N 74 W	2.5	8.4	4.5	4.06	4.27	...	0.1
26	.683	.760	.720	.7247	29.0	31.9	34.4	32.35	— 0.58	.133	.143	.166	.150	83	79	83	81	W	S W	S E	S 15 W	7.4	6.0	10.4	5.51	7.75	...	0.1
27	.730	.866	30.014	.8903	39.8	44.5	36.2	39.68	+ 7.23	.225	.182	.193	.196	92	61	99	81	S W	W	N W	S 68 W	6.2	11.6	0.4	5.36	6.49	...	...
28	30.048	.906	29.695	.8660	30.1	30.8	26.1	28.63	— 3.33	.157	.160	.131	.148	93	92	93	94	N W	N	N	N 4 W	6.7	7.2	9.3	7.01	7.14	...	6.5
29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	W	W	N 83 W	5.4	18.4	6.4	8.91	9.47	...	1.2
30	29.835	.985	30.049	.9723	5.5	18.5	9.9	11.72	—19.32	.049	.077	.054	.059	86	77	81	79	N W	W	N W	N 72 W	6.0	5.3	4.6	4.60	5.12	...	...
	29.6893	29.6831	29.7125	29.6991	32.07	39.36	33.18	34.64	— 2.60	.169	.177	.164	.168	88	69	82	79	.....	.....	.....	.....	6.01	11.68	5.66	.....	7.70	1.240	11.7

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest barometer .....30.300 at 8 a.m. on 14th } Monthly range
Lowest barometer.....28.538 at 0 50 p.m. on 23rd } 1.762.

Self-registering Ther.
- Maximum temperature .....61°0 on 6th } Monthly range
- Minimum temperature ..... 3°5 on 30th } 57°5.
- Mean maximum temperature .....42°36 } Mean daily range
- Mean minimum temperature.....27°47 } 14°89.
- Greatest daily range.....26°2 from a.m. to p.m. of 26th.
- Least daily range ..... 5°9 from a.m. to p.m. of 1st.

Warmest day ..... 5th; mean temperature.....49°00 }
Coldest day.....30th; mean temperature.....11°72 } Difference=37°28.

Maximum Radiation
- Solar.....112°0 on 29th } Monthly range
- Terrestrial .....—11°0 on 30th } 123°0.

Aurora observed on 2 nights, viz., 6th and 13th; possible to see Aurora on 12 nights, impossible on 18 nights.

Raining on 7 days; depth, 0.935 inches; duration of fall, 23.2 hours.

Snowing on 11 days; depth, 11.7 inches; duration of fall, 59.2 hours.

Mean of cloudiness, 0.72.

WIND.

Resultant direction, S. 87° W.; resultant velocity, 3.07 miles.

Mean velocity, 7.70 miles per hour.

Maximum velocity, 28.0 miles per hour, from noon to 1 p.m. of 11th.

Most windy day, 24th; mean velocity, 17.14 miles per hour.

Least windy day, 4th; mean velocity, 1.73 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 11.68 miles per hour.

Least windy hour, midnight; mean velocity, 5.05 miles per hour.

Fog on 3rd, 4th, 5th, 10th and 17th.

Solar haloes on 15th, 24th and 27th. Lunar halo on 19th.

First measurable Snow of season on 20th.

First Sleighing on 20th.

Last trip of steamer to Niagara on 4th.

COMPARATIVE TABLE FOR NOVEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity.
	°	°	°	°	°					°		
1846	41.3	+ 5.1	55.6	18.0	37.6	12	5.805	2	0.4	...	...	0.64 lbs
1847	38.6	+ 2.4	57.9	8.7	49.2	14	3.155	3	Inap.	...	...	0.56
1848	34.5	— 1.7	49.0	15.9	33.1	9	2.020	3	1.4	N 81 w	1.81	4.81 mls
1849	42.6	+ 6.4	56.4	26.5	29.9	10	2.815	2	1.0	N 39 w	1.55	4.78
1850	38.8	+ 2.6	62.8	11.0	51.8	7	2.955	1	Inap.	N 42 w	1.43	5.27
1851	32.9	— 3.3	50.2	13.8	36.4	5	3.855	6	6.7	N 50 w	1.25	4.70
1852	36.0	— 0.2	50.4	18.2	32.2	7	1.775	3	2.0	N 59 w	1.53	6.50
1853	38.7	+ 2.5	55.6	12.8	42.8	15	2.425	6	2.7	N 9 w	0.55	5.52
1854	36.8	+ 0.6	55.4	13.8	41.6	13	1.115	4	1.3	WEST.	3.44	7.54
1855	38.6	+ 2.4	59.2	15.5	43.7	8	4.590	6	3.0	N 66 w	3.18	10.81
1856	37.4	+ 1.2	56.4	18.8	37.6	10	1.375	9	9.5	S 85 w	2.95	8.75
1857	33.5	— 2.7	58.2	—3.5	61.7	14	3.235	9	6.9	S 61 w	5.45	9.25
1858	34.2	— 2.0	53.0	15.3	37.7	12	3.879	13	4.0	N 25 w	3.14	8.87
1859	38.9	+ 2.7	62.6	21.8	40.8	12	5.193	9	0.6	N 81 w	3.39	9.65
1860	37.9	+ 1.7	64.5	13.2	51.3	12	2.569	8	1.9	S 89 w	4.95	11.02
1861	37.1	+ 0.9	52.4	23.0	29.4	14	4.294	8	3.2	N 46 w	1.94	7.44
1862	35.6	— 0.6	58.0	16.2	41.8	11	2.205	11	5.3	N 46 w	3.00	6.60
1863	39.1	+ 2.9	67.0	17.8	49.2	13	3.656	6	0.1	N 88 w	3.50	7.86
1864	36.9	+ 0.7	60.2	21.0	39.2	11	3.765	8	4.5	S 72 w	3.82	7.64
1865	38.6	+ 2.4	63.2	23.6	39.6	5	0.975	7	1.1	N 79 w	2.98	7.90
1866	38.4	+ 2.2	54.2	21.8	32.4	13	2.963	4	2.2	N 88 w	3.06	6.96
1867	36.9	+ 0.7	60.4	9.6	50.8	8	1.835	9	0.9	N 87 w	4.02	7.76
1868	36.2	0.0	50.5	20.1	30.4	14	5.150	10	4.3	N 35 w	2.10	8.16
1869	32.7	— 3.5	58.0	13.0	45.0	9	2.540	18	10.2	N 78 w	3.69	8.12
1870	36.6	+ 0.4	57.2	19.4	37.8	6	0.594	5	3.1	N 89 w	4.36	8.74
1871	30.6	— 5.6	47.1	0.0	47.1	10	2.655	12	4.5	N 45 w	4.08	10.35
1872	32.9	— 3.3	52.0	8.2	43.8	7	0.420	9	1.3	S 85 w	5.02	7.48
1873	27.6	— 8.6	51.4	0.8	50.6	5	0.510	18	19.6	N 50 w	3.08	6.67
1874	34.6	— 1.6	61.0	3.5	57.5	7	0.935	11	11.7	S 87 w	3.07	7.70
Resu'ts to 1873.	36.16	...	56.39	14.80	41.59	9.79	2.855	7.26	3.77	N 77 w	2.77	7.76
Excess for '74.	— 1.52	...	+ 4.61	— 11.30	+ 15.91	— 2.79	— 1.920	+ 3.74	+ 7.93	...	...	+ 0.04

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO,—DECEMBER, 1874.

Latitude—43° 39′ 4″ *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A. M.	2 P. M.	10 P. M.	Mean.	Temp. of the Air. 6 A. M.	2 P. M.	10 PM	ME'N.	Excess of Mean above av'rage	Tension of Vapour. 6 A. M.	2 P. M.	10 P. M.	M'N.	Humidity of Air. 6 A. M.	2 P. M.	10 P. M.	M'N.	Direction of Wind. 6 A. M.	2 P. M.	10 P. M.	Resultant.	Velocity of Wind. 6 A. M.	2 P. M.	10 P. M.	Res'l-tant.	MEAN.	Rain in Inches.	Snow in inches.
1	29.911	29.664	29.723	29.7533	21.8	29.3	28.3	26.75	— 3.78	.106	.147	.135	.129	90	90	86	88	S	S W	S W	S 41 W	13.8	14.2	13.0	8.55	10.16	...	2.1
2	.750	.634	.405	.5850	30.8	34.0	41.2	35.77	+ 5.72	.148	.161	.235	.187	86	82	90	87	S W	S	S W	S 35 W	4.0	7.4	6.6	4.78	5.59	...	...
3	.340	.544	.888	.6272	42.3	39.4	23.2	33.67	+ 4.12	.257	.176	.102	.172	95	73	82	83	W	N W	N	N 61 W	6.8	14.8	16.0	9.58	12.77	..	...
4	30.116	30.136	30.036	30.0925	13.8	23.6	21.8	20.75	— 8.35	.068	.092	.092	.090	85	71	79	78	N	E	E	N 29 E	8.4	5.1	2.2	3.60	4.97	...	...
5	29.892	29.805	29.797	29.8253	23.6	34.7	33.3	30.78	+ 2.15	.105	.171	.170	.151	83	85	89	87	Calm.	W	S W	S 67 W	0.0	8.0	1.2	2.16	2.61	...	0.2
6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S W	S W	S 56 W	1.0	1.0	2.0	2.17	2.19	...	0.1
7	.425	.438	.627	.5127	32.9	34.4	18.5	27.12	— 0.60	.168	.144	.078	.122	89	71	77	79	Calm.	N W	N	N 35 W	0.0	20.0	21.6	9.79	10.91	...	...
8	.756	.713	.550	.6642	14.2	20.7	30.1	22.75	— 4.53	.06	.073	.142	.102	94	66	85	82	N W	S W	S W	S 79 W	3.0	2.0	19.0	6.61	9.78	...	Inap.
9	.335	.418	.728	.4992	33.3	35.8	25.4	31.25	+ 4.38	.170	.128	.125	.138	89	60	91	78	S W	W	W	S 74 W	13.0	24.5	2.0	12.31	13.85	...	0.2
10	.840	.800	.684	.7688	23.6	30.8	29.3	27.67	+ 1.22	.111	.083	.123	.105	87	49	75	70	W	W	S W	S 75 W	0.6	3.6	6.8	4.64	4.69	...	...
11	.642	.716	.807	.7313	27.9	23.9	21.0	23.97	— 2.08	.131	.087	.089	.101	86	69	78	78	S W	N W	W	N 84 W	13.4	13.8	0.0	8.79	10.53	...	0.1
12	.844	.857	.820	.8373	17.4	22.5	20.7	19.90	— 5.75	.077	.085	.097	.086	82	70	88	80	N	W	W	S 85 W	4.0	5.9	7.2	4.78	5.72	...	Inap.
13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Calm.	N E	N	N 32 E	0.0	6.0	9.0	3.51	4.03	...	6.0
14	.679	.965	30.119	.9423	17.4	5.9	—0.8	6.95	—17.93	.089	.039	.037	.052	93	69	91	81	N	N	...	...	13.0	...	...	...	...	...	0.5
15	30.155	30.116	29.982	30.0823	—3.5	10.2	25.4	11.07	—13.48	.032	.057	.111	.069	87	83	81	84	N	N	S W	...	4.0	1.4	13.0	...	...	...	0.2
16	29.877	29.661	.403	29.6218	25.4	33.7	37.6	32.00	+ 7.77	.118	.122	.208	.147	86	61	92	79	S W	S E	S W	S 14 W	6.0	8.0	4.4	4.63	6.71	Inap.	...
17	.335	.450	.681	.5147	37.6	32.6	17.8	28.00	+ 4.10	.191	.130	.072	.126	85	68	74	77	W	W	W	N 87 W	10.9	24.5	25.0	16.48	17.46	...	...
18	.703	.368	.353	.4722	15.3	26.8	32.6	26.07	+ 2.42	.080	.110	.149	.118	86	80	80	81	W	S W	W	S 73 W	5.5	15.5	10.0	11.79	12.21	...	1.0
19	.494	.617	.646	.6018	31.1	35.8	29.7	31.43	+ 8.10	.153	.156	.139	.147	87	74	84	83	S W	S W	W	S 62 W	10.0	5.2	6.4	7.49	7.54	...	...
20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N W	N	N	N 7 W	3.0	18.8	7.0	7.84	8.59	...	...
21	.779	.678	.557	.6555	13.1	29.7	31.1	25.55	+ 2.70	.071	.128	.153	.121	90	77	87	84	N E	S	S	S 11 W	0.4	11.8	9.0	3.64	6.28	...	...
22	.352	.255	.398	.3392	34.0	37.1	35.1	35.08	+12.47	.171	.193	.165	.174	87	87	81	85	S W	S W	S W	S 45 W	8.0	9.5	7.2	7.00	7.21	Inap.	...
23	.577	.527	.395	.4895	33.3	34.4	35.5	34.28	+11.87	.156	.136	.168	.154	82	68	81	78	S W	S W	S W	S 41 W	6.6	13.9	9.6	9.55	10.26	Inap.	...
24	.319	.391	.694	.4902	31.9	31.1	25.7	28.60	+ 6.38	.158	.102	.115	.117	87	58	82	74	S W	W	W	S 75 W	15.0	22.1	17.8	15.89	16.08	...	0.4
25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	W	S	S E	S 38 W	10.5	6.2	14.0	5.46	9.00	...	...
26	.601	.548	.604	.5898	32.9	39.1	30.1	32.88	+11.02	.153	.155	.150	.149	81	64	89	80	S W	S W	N W	S 61 W	2.0	1.8	5.1	2.32	3.06	...	...
27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	E	S E	S 81 E	5.5	7.4	5.0	3.87	5.60	.050	...
28	.335	.372	.470	.4032	39.8	37.3	34.9	36.97	+15.35	.243	.190	.176	.199	99	86	87	90	W	N W	S W	N 77 W	1.7	3.8	4.8	2.05	2.96	Inap.	...
29	.484	.756	.913	.7378	3[illegible].9	18.9	15.3	21.70	+ 0.18	.153	.060	.064	.090	82	57	74	71	W	W	W	N 82 W	15.2	27.0	13.7	18.27	18.96	...	Inap.
30	.914	.972	30.272	30.0810	13.8	19.0	3.4	11.67	— 9.78	.068	.045	.038	.051	86	42	78	70	W	W	N	N 75 W	16.2	25.7	13.0	13.97	17.33	...	0.2
31	30.388	30.388	30.338	30.3697	—6.0	10.6	13.1	6.08	—15.32	.024	.053	.071	.051	76	75	91	83	N	S W	N W	N 11 W	9.0	1.5	5.0	4.63	5.93	...	0.1
	29.6863	29.6842	29.7265	29.7034	24.25	28.15	25.36	25.72	+ 0.86	.126	.116	.123	.121	87	71	84	80	.....	.....	.....	.....	6.67	11.34	9.09	.....	8.72	0.050	11.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR DECEMBER, 1874.

NOTE.—The monthly means do not include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M. and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer..... 30.416 at 8 a m. on 31st. } Monthly range
Lowest Barometer ..... 29.255 at 2 p.m. on 22nd. } 1.161.

Self-registering Ther.
- Maximum temperature..... 44.0 on 3rd. } Monthly range
- Minimum temperature ..... —7.5 on 15th. } 51°5
- Mean maximum temperature.....32°84 } Mean daily range
- Mean minimum temperature.....17°30 } 15°54
- Greatest daily range.....33°5 from a.m. to p.m. of 15th.
- Least daily range ..... 4° from a m. to p.m. of 6th.

Warmest day.....28th; mean temperature 36°97 } Difference=30°89
Coldest day.....30th; mean temperature 6°08 }

Maximum Radiation
- Solar .....108°0 on 3rd } Monthly range
- Terrestrial .....22°0 on 15th. } 130°0

No Aurora observed.

Possible to see Aurora on 12 nights; impossible on 19 nights.

Raining on 5 days; depth, 0.050 inches; duration of fall, 10.5 hours.

Snowing on 15 days; depth, 11.1; duration of fall, 45.4 hours.

Mean of cloudiness, 0.78.

WIND.

Resultant direction, S. 84° W.; resultant velocity, 5.49 miles.

Mean velocity, 8.72 miles per hour.

Maximum velocity, 31.2 miles from noon to 1 p.m. of 29th.

Most windy day, 29th; mean velocity, 18.96 miles per hour.

Least windy day, 6th; mean velocity, 2.19 miles per hour.

Most windy hour, 1 p.m.; mean velocity, 11.67 miles per hour.

Least windy hour, 4 a.m.; mean velocity, 6.06 miles per hour.

Solar haloes on 25th, 26th and 27th.

Lunar haloes on 19th, 20th, 21st, 26th, and 29th.

Fog on 21st, 27th and 28th.

Bay frozen on 13th; broke up again. Closed again on 29th

COMPARATIVE TABLE FOR DECEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1846	27.5	+ 1.8	49.2	3.9	45.3	5	1.215	9	6.0	...	...	0.57 lbs.
1847	30.1	+ 4.4	49.6	0.3	49.3	7	1.185	8	6.8	...	...	0.55
1848	29.1	+ 3.4	48.8	1.1	47.7	7	2.750	7	16.5	S 83 W	1.12	5.44mls.
1849	26.5	+ 0.8	46.8	— 6.5	47.3	5	0.840	12	9.6	N 82 W	2.56	6.23
1850	21.7	— 4.0	48.8	— 9.0	57.8	2	0.190	18	29.5	N 44 W	2.93	7.40
1851	21.5	— 4.2	44.0	—14.8	58.8	6	1.075	15	10.7	N 82 W	4.00	7.37
1852	31.9	+ 6.2	51.0	13.2	37.8	7	3.995	10	20.1	S 69 W	1.03	6.54
1853	25.3	— 0.4	46.4	— 8.4	54.8	4	0.625	13	22.3	N 35 W	2.39	4.98
1854	21.9	— 3.8	44.8	— 7.0	51.8	5	0.590	12	17.2	N 44 W	4.30	8.56
1855	26.8	+ 1.1	47.0	— 5.2	52.2	6	1.845	10	29.5	S 88 W	5.29	11.38
1856	22.9	— 2.8	42.2	— 9.1	51.3	6	1.790	20	16.3	S 87 W	4.62	11.56
1857	31.9	+ 6.2	46.0	4.7	41.3	7	3.205	14	9.0	N 89 W	2.50	6.84
1858	27.4	+ 1.7	45.4	4.2	41.2	11	1.657	18	10.4	N 78 W	1.66	9.36
1859	17.9	— 7.8	54.8	— 6.0	60.8	3	1.035	23	37.4	N 53 W	4.29	10.77
1860	24.0	— 1.7	39.0	— 7.0	46.0	3	1.362	21	13.5	N 62 W	4.66	10.14
1861	31.1	+ 5.4	55.2	5.5	49.7	6	0.560	8	6.8	N 72 W	3.50	7.96
1862	28.8	+ 3.1	50.1	— 3.4	53.5	5	1.945	8	10.4	N 73 W	3.17	7.58
1863	27.0	+ 1.3	53.4	— 1.5	54.9	10	2.960	17	7.1	N 41 W	1.61	9.40
1864	24.7	— 1.0	50.4	—10.4	60.8	9	2.045	18	27.1	S 82 W	4.94	9.98
1865	27.7	+ 2.0	54.2	5.7	48.5	7	1.727	11	5.2	S 81 W	3.07	7.33
1866	25.1	— 0.6	51.0	— 5.0	56.0	7	2.790	13	15.5	S 88 W	4.98	9.91
1867	21.6	— 4.1	49.5	—12.8	62.3	7	1.408	21	13.6	S 81 W	4.82	10.32
1868	22.5	— 3.2	44.2	— 3.2	47.4	1	0.005	18	15.5	N 71 W	4.05	9.80
1869	28.7	+ 3.0	45.0	6.0	39.0	10	2.590	9	7.1	S 80 W	2.31	8.44
1870	26.5	+ 0.8	45.2	— 5.8	51.0	6	2.430	16	15.9	N 89 W	5.06	11.46
1871	19.9	— 5.8	48.2	—21.0	69.2	4	0.940	20	14.2	S 70 W	6.91	11.52
1872	18.7	— 7.0	40.0	—13.8	53.8	3	0.390	4	38.0	N 87 W	5.51	9.06
1873	29.8	+ 4.1	48.2	6.4	41.8	10	0.995	12	19.2	West.	2.95	5.93
1874	25.7	0.0	44.0	— 7.5	51.5	5	0.050	15	11.1	S 84 W	5.93	8.72
Res'lts to 1873.	25.75	.....	47.59	—3.53	51.12	5.77	1.596	13.85	15.08	N 81 W	3.38	8.66
Excess for '74.	— 0.03	.....	— 3.59	— 3.97	+ 0.38	— 0.77	— 1.546	+ 1.15	— 3.98	...	...	+ 0.06

GENERAL METEOROLOGICAL REGISTER

FOR THE YEAR 1874.

GENERAL METEOROLOGICAL

MAGNETICAL OBSERVATORY,

Latitude 43° 39′ 4″ North. Longitude 5h. 17m. 33s. West. Elevation above

	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.
Mean Temperature	24°.79	22°.84	28°.67	34°.23	52°.46	62°.49	67°.86
Difference from average (34 years)	+1.88	−0.06	−0.63	−6.81	+0.80	+0.75	+0.45
Thermic anomaly (Lat. 43° 40′)	−8.01	−11.86	−11.43	−15.97	−5.64	−2.11	−0.84
Highest temperature	57.5	42.0	57.0	60.8	86.0	88.0	83.5
Lowest temperature	−4.0	0.4	5.5	9.5	25.3	24.2	44.4
Monthly and annual ranges	61.5	41.6	51.5	51.3	60.7	43.8	39.1
Mean maximum temperature	31.11	29.86	37.15	41.55	63.28	72.34	77.06
Mean minimum temperature	17.14	14.07	21.52	25.34	41.68	53.02	56.93
Mean daily range	13.97	15.79	15.63	16.21	21.60	19.32	20.13
Greatest daily range	36.0	34.7	30.7	25.3	46.5	35.0	31.8
Mean height of the barometer	29.6779	29.7109	29.5767	29.6481	29.5676	29.5733	29.5858
Difference from average (33 years)	+.0348	+.0880	−.0243	+.0601	−.0031	−.0001	−.0072
Highest barometer	30.295	30.308	30.077	30.227	29.907	29.905	29.797
Lowest barometer	29.073	29.116	29.013	29.135	28.956	29.176	29.244
Monthly and annual ranges	1.222	1.192	1.064	1.092	0.951	0.729	0.553
Mean humidity of the air	87	82	75	69	63	69	70
Mean elasticity of aqueous vapour	0.129	0.106	0.127	0.139	0.261	0.395	0.478
Mean of cloudiness	0.78	0.74	0.68	0.63	0.50	0.54	0.52
Difference from average (21 years)	+0.05	+0.03	+0.06	+0.03	−0.06	+0.02	+0.02
Resultant direction of the wind	N 61° W	N 24° W	N 65° W	N 39° W	N 49° W	N 44° W	N 58° W
" velocity of the wind	3.42	2.46	7.47	4.09	2.64	1.68	1.26
Mean velocity (miles per hour)	8.58	8.12	13.24	9.64	8.45	6.52	6.55
Difference from average (26 years)	+0.20	−0.58	+4.27	+1.43	+1.64	+1.32	+1.58
Total amount of rain	2.820	1.150	1.390	1.240	1.492	1.795	3.350
Difference from average (34 years)	+1.626	+0.299	−0.204	−1.252	−1.692	−1.120	+0.169
Number of days' rain	13	6	10	4	8	13	11
Total amount of snow	12.2	19.1	2.6	11.0	...	...	...
Difference from average (31 years)	−4.98	+0.47	−10.17	+8.74	−0.06	...	...
Number of days' snow	15	15	10	7	...	...	...
Number of fair days	9	10	12	17	23	17	20
Number of auroras observed	2	2	0	3	3	3	4
Possible to see auroras (No. of nights)	8	14	17	14	19	21	18
Number of thunder storms	0	1	0	1	3	4	7

REGISTER FOR THE YEAR 1874.

TORONTO, ONTARIO.

Lake Ontario, 108 feet. Approximate elevation above the sea, 342 feet.

Aug.	Sept.	Oct.	Nov.	Dec.	1874.	1873.	1872.	1871.	1870.	1869.	1868.
67°.08	63°.33	47°.47	34°.64	25°.72	44°.30	42°.94	42°.92	43°.81	45°.93	43°.13	43°.33
+0.88	+5.28	+1.62	−1.52	−0.93	+0.22	−1.14	−1.16	−0.27	+1.85	−0.95	−0.75
−1.42	+1.83	−6.63	−8.56	−10.28	−6.70	−8.06	−8.08	−7.19	−5.07	−7.87	−7.67
95.0	88.6	67.0	61.0	44.0	95.0	89.5	96.0	89.5	88.4	89.0	93.4
48.0	39.5	24.8	3.5	−7.5	−7.5	−18.4	−13.8	−21.0	−6.6	−5.4	−15.6
47.0	49.1	42.2	57.5	51.5	102.5	107.9	109.8	110.5	95.0	94.4	109.0
77.40	70.22	55.02	42.36	32.84	...	...	...	...	...	...	...
55.97	51.63	38.97	27.47	17.30	...	...	...	...	...	...	...
21.43	18.59	16.05	14.89	15.54	17.43	16.93	17.59	16.46	15.71	14.61	15.26
30.5	28.1	30.6	26.2	33.5	46.5	37.9	37.8	34.6	36.2	33.6	38.7
29.6587	29.6717	29.6690	29.6991	29.7034	29.6452	29.5964	29.6079	29.6066	29.5956	29.5970	29.6421
+.0357	+.0050	+.0228	+.0914	+.0522	+.0296	−.0192	−.0077	−.0099	−.0200	−.0186	+.0265
29.892	29.921	30.040	30.300	30.416	30.416	30.246	30.231	30.388	30.212	30.226	30.445
29.244	29.274	29.041	28.538	29.255	28.538	28.797	28.789	28.673	28.186	28.793	28.824
0.648	0.647	0.999	1.762	1.161	1.878	1.449	1.442	1.715	2.046	1.430	1.621
66	74	79	70	80	74	78	75	73	76	77	76
0.433	0.436	0.266	0.168	0.121	0.255	0.257	0.259	0.242	0.279	0.252	0.264
0.39	0.49	0.76	0.72	0.78	0.63	0.60	0.59	0.64	0.62	0.66	0.64
−0.10	−0.01	+0.15	−0.02	+0.03	+0.02	−0.01	−0.02	+0.03	+0.01	+0.04	+0.03
N 20° E	S 14° E	N 70° W	S 87° W	S 84° W	N 61° W	N 58° W	N 72° W	N 72° W	N 45° W	N 64° W	N 57° W
0.70	0.09	2.71	3.07	5.49	2.67	1.98	2.91	2.49	1.61	2.55	1.47
6.16	6.30	6.40	7.70	8.72	8.03	7.96	6.78	8.24	7.33	7.20	7.69
+0.93	+0.80	+0.20	+0.04	+0.06	+0.99	+0.92	−0.26	+1.20	+0.29	+0.16	+0.65
0.380	1.554	1.418	0.935	0.050	17.574	20.232	18.588	22.771	33.898	31.182	29.408
−2.589	−2.105	−0.991	−1.920	−1.546	−11.325	−8.667	−10.311	−6.128	+4.999	+2.283	+0.509
4	11	11	7	5	103	110	115	110	116	115	103
...	...	Inap.	11.7	11.1	67.7	113.8	67.5	99.6	122.9	84.6	78.7
...	...	−0.82	+7.93	−3.98	−2.87	+43.23	−3.07	+29.03	+52.33	+14.03	+8.13
...	...	2	11	15	75	79	77	84	77	81	82
27	19	19	14	10	197	170	185	187	185	180	190
2	2	5	2	0	28	60	67	55	77	47	50
24	25	13	12	12	197	203	236	209	206	182	193
3	3	1	0	0	23	22	28	22	34	32	25

TEMPERATURE.

	1874.	Average of 34 years.	Extremes.	
	°	°	°	°
Mean temperature of the year	44.30	44.08	46.36 in '46	42.16 in '56.
Warmest month	July.	July.	July, 1868.	Aug., 1860.
Mean temperature of the warmest month	67.86	67.41	75.80	64.46
Coldest month	February.	February.	Jan., 1857.	F b. 1848.
Mean temperature of the coldest month	22.84	22.90	12.75	26.60
Difference between the temperature of the warmest and the coldest months	45.02	44.51	..	..
Mean of deviations of monthly means from their respective averages of 34 years, signs of deviation being disregarded	1.73	2.45	3.62 in 1843.	..
Month of greatest deviation without regard to sign	April.	January.	Jan., 1857.	..
Corresponding magnitude of deviation	6.81	3.64	10.1	..
Warmest day	June 23.	..	July 14, '68	July 31, '44.
Mean temperature of the warmest day	78.03	77.71	84.50	72.75
Coldest day	Jan. 30.	..	Feb. 6, 1855. Jan. 22, 1857.	Dec. 22, '42.
Mean temperature of the coldest day	1.13	—1.48	—14.38	9.57
Date of the highest temperature	Aug. 12.	..	Aug. 24, 1854	Aug. 19, '40.
Highest temperature	95.0	90.9	9 .2	82.4
Date of the lowest temperature	Dec. 15.	..	Jan. 10, 1859.	Jan. 2, 1842.
Lowest temperature	—7.5	—12.8	—26.5	1.9
Range of the year	102.5	103.7	118.2	87.0

BAROMETER.

	1874.	Average of 33 years.	Extremes.	
Mean pressure of the year	29.6452	29.6156	29.6770 in 1849.	29.5602 in 1864.
Month of the highest mean pressure	February.	Sept.	Jan., 1849.	June, 1864.
Highest mean monthly pressure	29.7109	29.6667	29.8046	29.6525
Month of lowest mean pressure	May.	May.	March, 1859.	Nov., 1849.
Lowest mean monthly pressure	29.5676	29.5707	29.4143	29.5886
Date of the highest pressure in the year	Dec. 31, 8 a. m.	..	Jan. 8, 1866.	Jan. 14, 1870.
Highest pressure	30.416	30.367	30.940	30.212
Date of the lowest pressure in the year	Nov. 23, 1 p.m.	..	Jan. 2, 1870.	Mar. 17, '45.
Lowest pressure	28.538	28.687	28.166	28.939
Range of the year	1.878	1.680	2.133 in 1866.	1.303 in 1845.

RELATIVE HUMIDITY.

	1874.	Average of 32 years.	Extremes.	
Mean humidity of the year	74	77	82 in 1851.	73 in 1858.
Month of greatest humidity	January.	January.	Jan., 1857.	Dec., 1858.
Greatest mean monthly humidity	87	83	89	81
Month of least humidity	May.	May.	Feb., 1843.	April, 1849.
Least mean monthly humidity	63	71	58	76

EXTENT OF SKY CLOUDED.

	1874.	Average of 21 years.	Extremes.	
Mean cloudiness of the year	0.63	0.61	0.66 in 1869.	0.57 in 1856.
Most cloudy month	January & December.	December.	..	..
Greatest monthly mean of cloudiness	0.78	0.75	0.83	0.73
Least cloudy month	August.	August.	..	..
Lowest monthly mean of cloudiness	0.39	0.49	0.29	0.50

WIND.

	1874.	Result of 26 years.	Extremes.	
Resultant direction	N 61° W	N 62° W	..	..
Resultant velocity in miles	2.67	1.95	..	..
Mean velocity without regard to direction	8.03	7.04	8.55 in '60	
Month of greatest mean velocity	March.	March.	March, 1874.	Jan., 1848.
Greatest monthly mean velocity	13.24	8.97	13.24	5.82
Month of least mean velocity	August.	July.	Aug., 1852.	Sept., 1860.
Least monthly mean velocity	6.16	4.97	3.30	5.79
Day of greatest mean velocity	March 23.	..	Nov. 15, '71.	Dec. 2, 1848.
Greatest daily mean velocity	26.54	23.80	32.16	15.30
Day of least mean velocity	Feb. 8.	..	..	..
Least daily mean velocity	0.04	..	..	..
Hour of greatest absolute velocity	March 11, 4 to 5 p.m.	..	Dec. 27, '61, 9 to 10 a.m.	Mar. 14,1853, 11 a.m. to n.
Greatest velocity	37.0	40.14	46.0	25.6

RAIN.

	1874.	Average of 34 years.	Extremes.	
Total depth of rain in inches	17.574	28.899	43.555 in '43.	17.574 in '74.
Number of days in which rain fell	103	109	130 in '61	80 in 1841.
Month in which the greatest depth of rain fell.	July.	September	Sept., 1843.	Sept, 1848.
Greatest depth of rain in one month	3.350.	3,659	9.760	3.115
Month in which the days of rain were most frequent	January and June.	October.	June, 1869, October, '64.	May, '41.
Greatest number of rainy days in one month	13	13	22	11
Days in which the greatest amount of rain fell.	July 7.	..	Sept. 14, 1843	Sept. 14, '48
Greatest amount of rain in one day	1.370	2.023	3.455	1.000

SNOW.

	1874.	Average of 31 years.	Extremes.	
Total depth of snow in inches	67.7	70.6	122.9 in '70.	38.4 in 1851.
Number of days in which snow fell	75	64	87 in 1859.	33 in 1848.
Month in which the greatest depth of snow fell	February.	February.	March. 1870.	Dec., 1851.
Greatest depth of snow in one month	19.1	18.6	62.4	10.7
Month in which the days of snow were most frequent	Jan., Feb., and Dec.	January.	Dec., 1872.	Feb., 1848.
Greatest number of days of snow in one month	15	14	24	8
Day in which the greatest amount of snow fell	Nov. 28.	..	Feb 5, '63. Mar. 27, '70	Jan. 10, 1857.
Greatest fall of snow in one day	6.5	10.0	16.0	5.5

DIFFERENCE OF CERTAIN METEOROLOGICAL ELEMENTS FROM THEIR NORMAL VALUES FOR EACH QUARTER AND FOR THE YEAR. FROM DECEMBER, 1873, TO NOVEMBER, 1874, INCLUSIVE.

Quarters.	Barometer.	Temperature	Rain.	Days Rain.	Snow.	Days Snow.	Velocity of Wind.	Clouded Sky.
	in.	°	in.		in.		miles.	
Winter	+.0478	+2.00	+ 1.305	+14.86	—0.25	+ 1.59	—1.07	—.05
Spring	+.0109	—2.21	— 3.148	— 6.00	—6.88	+ 8.10	+2.45	+.01
Summer	+.0095	+0.69	— 3.540	— 8.09	..	..	+1.28	—.02
Autumn	—.0397	+1.79	— 5.016	— 4.64	+7.11	+ 3.92	+0.35	—.04
Year	+.0270	+0.57	—10.399	— 3.87	—0.02	+13.61	+0.75	.00

PERIODICAL OR OCCASIONAL EVENTS, 1874.

January.. 16. Bay frozen second time this winter.
February. 11. Robins seen.
" 12. First thunder storm of year.
March.... 4. Crows seen.
" 12. Bay open; closed again same evening.
" 18. Robins numerous. 19th. Blue birds seen.
April..... 1. Wild geese passing
" 20. First trip "City of Toronto." 26th. Last snow of season.
" 29. Very severe snow storm in W. S. "City of Toronto" covered with ice on her return trip.
May..... 3. Swallows seen. 4th. Frogs croaking.
" 4. First River steamer ("Spartan") arrived.
" 5. Butterflies seen.
" 9. Baltimore birds. Mosquitoes. May bugs. Maples in flower.
" 12. Humming birds. Woodpecker.
" 19. Last ice of season. Last hoar frost.
" 22. Wild strawberries in flower. Flowering currant in flower.
" 23. Plum and cherry trees in blossom.
" 24. Dandelions in flower. 30th. Chestnut and lilacs in flower.
June..... 9. Fireflies.
August... 15. Humming birds numerous.
" 20. Grass burnt up, and trees suffering from want of water.
" 25. Swallows gone.
October... 13. First snow.
" 15. First time thermometer fell to 32°. First ice.
November 4. Last trip of "City of Toronto."
" 20. First measurable snow.
" 20. First sleighing.
December 13. Bay frozen; broke up again; closed on 27th.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JANUARY, 1875.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	MEAN.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	MEAN	Excess of Mean above norm'l.	Tension of Vapour. 6 A.M	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Resultant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN	Rain in inches.	Snow in inches.
1	30.235	30.009	29.787	29.9787	13.1°	25.4°	29.0°	22.42°	+ 1.08°	.065	.118	.147	.109	84	86	92	87	N	E	S E	S 51° E	2.6	8.5	3.0	3.80	5.71	...	...
2	29.336	29.224	.674	.4273	28.2	31.1	22.8	26.37	+ 5.08	.142	.152	.107	.124	92	87	87	84	E	W	W	S 84 W	5.5	24.6	17.0	9·62	12.57	...	5.0
3	.740	.750	.720	.7383	15.0	24.0	20.0	19.50	— 1.76	—	—	—	—	—	—	—	—	S W	S W	W	S 71 W	9.4	10.4	6.0	8.72	8.85	...	Inap.
4	.737	.747	.767	.7550	17.8	22.1	16.3	18.37	— 2.87	.091	.102	.083	.089	93	86	92	88	W	W	W	S 87 W	3.4	11.5	6.8	6.71	6.94	...	...
5	.778	.888	30.062	.9292	12.4	15.3	9.1	11.12	—10.10	.062	.052	.058	.055	80	60	89	76	W	W	W	S 84 W	7.9	18·5	9.2	9.36	9 42	...	...
6	30.100	.960	29.927	.9983	4.1	13.5	12.7	10.22	—11.00	.043	.060	.067	.057	82	76	85	82	N W	N W	N	N 27 W	0.5	2.0	15.2	4.95	5.68	...	0.1
7	29.906	.735	.692	.7730	12.7	20.3	19.2	17.10	— 4.12	.070	.091	.097	.086	90	83	92	90	N	N	N W	N 2 W	8.0	10.0	8.8	9.35	9.63	...	2.1
8	.885	.859	.595	.7575	12.0	19.2	22.8	18.32	— 2.90	.065	.069	.094	.080	88	66	77	78	N	S E	S	S 44 E	6.4	8.0	11.0	1.41	8.68	...	2.1
9	.410	.724	.896	.7028	21.0	0.8	—3.9	3.88	—17.35	.102	.036	.028	.048	89	85	80	83	S W	W	S W	S 70 W	22.0	25.3	20.5	18.75	20.54	...	0.5
10	.930	.950	.900	.9267	—8.5	8.0	7.0	1.87	—19.40	—	—	—	—	—	—	—	—	W	S W	S W	S 67 W	12.5	10.2	18.5	14.06	14.23	...	...
11	.872	.922	30.048	.9677	1.9	13.8	7.7	7.80	—13.52	.039	.057	.051	.050	86	70	84	81	S W	S W	N W	S 73 W	10.0	10.0	7.2	9.13	9.68	...	...
12	30.089	.958	29.757	.9157	5.5	22.8	26.5	18.92	— 2.45	.049	.107	.119	.092	88	87	82	85	N	E	N E	N 82 W	6.8	16.5	13.0	8.64	10.91	...	...
13	29.439	.311	.521	.4295	29.7	35.1	24.3	28.62	+ 7.20	.154	.174	.116	.143	93	85	90	90	S E	W	W	S 30 W	13.0	16.6	11.8	7.13	13.87	...	2.5
14	.689	.751	.875	.7853	14.9	18.2	6.6	12.93	— 8.52	.075	.065	.047	.060	87	61	81	76	W	W	N W	N 87 W	6.5	26.6	4.7	13.11	13.40	...	...
15	.973	30.004	.961	.9835	5.9	14.2	10.6	9.93	—11.57	.047	.058	.061	.056	83	70	88	82	N	N	N E	N 61 W	4.2	2.0	3.2	4.03	5.45	...	0.3
16	.822	29.768	.884	.8207	10.9	11.7	7.0	9.93	—11.65	.066	.063	.054	.060	94	86	91	89	N E	N	W	N 6 E	9.7	9.0	10.8	6.61	8.40	...	8.0
17	30.000	30.040	30.040	30.0250	4.0	16.5	10.5	10.00	—11.62	—	—	—	—	—	—	—	—	W	W	N	N 54 W	7.4	12.2	4.0	5.69	6.73	...	...
18	29.867	29.815	29.843	29.8490	8.4	12.4	9.9	10.35	—11.33	.061	.056	.060	.058	96	73	89	85	N	N E	N W	N 12 E	14.5	7.4	1.4	6.99	8.06	...	3.5
19	.874	.879	.950	.9062	6.6	15.6	8.0	9.43	—12.32	.053	.073	.048	.055	91	83	78	83	W	S W	W	S 84 W	8.8	10.4	7·0	9·62	10.13	...	...
20	30.007	30.086	.995	30.0288	7.7	15.8	10.9	11.58	—10.23	.051	.063	.061	.060	85	77	86	82	W	Calm.	S E	N 82 W	2.8	0.0	6.6	2.53	4.33	...	...
21	29.719	29.507	.423	29.5302	19.6	25.4	22.8	23.02	+ 1.13	.090	.132	.115	.114	85	96	93	91	E	S E	N E	S 69 E	12.8	7.4	4.1	7.82	8.81	Inap.	2.2
22	.355	.496	.801	.5735	21.8	25.4	18.1	21.23	— 0.70	.111	.097	.082	.094	95	71	82	82	Calm.	W	W	S 76 W	0.0	21.5	13.0	9.11	10.10	...	1.0
23	.974	30.073	.972	30.0043	14.2	19.6	22.8	19.12	— 2.90	.069	.072	.107	.086	86	68	87	82	N W	E	S E	N 36 E	10.5	4.5	13.6	1.69	8.00	...	...
24	.700	29.350	.340	29.4433	23.5	31.0	30.5	28.25	— 6.18	—	—	—	—	—	—	—	—	E	S E	W	S 57 E	12.5	8.0	16.5	3.18	12.79	...	3.5
25	.556	.765	.946	.7788	21.8	21.0	16.7	18.88	— 3.23	.106	.081	.072	.082	90	73	77	80	W	W	W	S 78 W	17.5	18.0	11.9	16.05	16.15	...	...
26	30.005	.995	.979	.9930	15.6	20.0	13·8	16.22	— 5.97	.079	.081	.067	.075	90	73	84	82	W	W	W	S 88 W	8.2	9.7	1.8	7.25	7.37	...	...
27	29.861	.710	.595	.7057	12.4	22.8	27.9	21.40	— 0.83	.066	.100	.145	.106	89	82	95	90	N W	E	E	S 73 E	4.2	11.2	9.6	3.69	6.82	...	1.0
28	.436	.331	.528	.4268	28.6	29.0	10.2	22.18	— 0.13	.144	.140	.062	.111	92	87	92	88	N E	N W	N W	N 2 E	10.0	13.8	3.8	5.27	8.48	...	1.0
29	.537	.433	.388	.4392	5.9	16.7	14.9	12.97	— 9.42	.050	.072	.062	.064	88	78	73	81	N	N	N	N 5 E	8.0	8.4	6.0	7.22	7.63	...	...
30	.371	.377	.574	.4527	13.1	26.1	12.0	16.95	— 5.48	.071	.090	.061	.075	91	63	80	80	W	S W	W	S 71 W	3.8	12.6	4.8	7.37	8.40	...	Inap.
31	.480	.440	.520	.4917	29.0	26.0	8.0	19.42	— 3.07									E	W	W	N 86 W	9.5	13.2	6.6	4.49	8.23	...	1.5
	29.7636	29.7373	29.7729	29.7593	13.87	19.90	15.31	16.07	— 5.61	.078	.087	.080	.080	89	77	86	84	.....	.....	.....	.....	8.35	11.87	8.95	...	9.54	Inap.	32.3

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JANUARY, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer..... 30.235 at 6 a.m. on 1st. } Monthly range
Lowest Barometer ..... 29.164 at 0.30 p.m. on 5th } 1.071.

Self-registering Thermometer:
- Maximum temperature .....39°0 on 13th. } Monthly range
- Minimum temperature..... —8°8 on 10th } 47°8.
- Mean maximum temperature .....23°20. } Mean daily range
- Mean minimum temperature ..... 7°84. } 15°36.
- Greatest daily range.....31°2 from a.m. to p.m. of 9th.
- Least daily range.....6°2 from a.m. to p.m. of 16th.

Warmest day .....13th; mean temperature .....28°62 } Difference=24°74.
Coldest day.....9th; mean temperature..... 3°88 }

Maximum { Solar .....105°5 on 30th. } Monthly range
Radiation { Terrestrial ..... —17°5 on 10th. } 123.0.

No Aurora observed.
Possible to see Aurora on 14 nights; impossible on 17 nights.
Raining on 1 day; depth in app.; duration of fall 3.0 hours.
Snowing on 17 days; depth 32.3; duration of fall 121.2 hours
Mean of cloudiness, 0.76.

WIND.

Resultant direction N. 88° W.; resultant velocity 4.06 miles.
Mean velocity 9.54 miles per hour.
Maximum velocity 32.5 miles, from noon to 1 p.m. of 9th.
Most windy day 9th; mean velocity 20.54 miles per hour.
Least windy day 20th; mean velocity 4.33 miles per hour.
Most windy hour 2 p.m.; mean velocity 11.87 miles per hour.
Least windy hour 5 a.m.; mean velocity 7.83 miles per hour.

Solar haloes on 8th, 10th and 17th: Lunar haloes on 20th and 23rd.
Earthquake felt on 8th, about 3.40 p.m.

COMPARATIVE TABLE FOR JANUARY.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1847	23.3	+ 0.3	42.4	2.7	39.7	7	2.135	5	7.5	...	...	1.091bs
1848	28 7	+ 5.7	51.1	—11.4	62.5	7	2.245	8	7.1	N 82 W	2.03	5.82mls
1849	18.5	— 4.5	39.5	—14.2	53.7	4	1.175	10	9.2	N 63 W	3.06	6.71
1850	29.7	+ 6.7	46.4	9.9	36.5	5	1.250	8	5.2	N 37 W	0.69	5.80
1851	25.5	+ 2.5	43.4	—12.8	56.2	4	1.275	10	7.8	S 77 W	3.26	7.69
1852	18.4	— 4.6	37.3	—10.6	47.9	0	0.000	19	30.9	N 68 W	3.14	7.67
1853	23.0	0.0	40.9	— 9.7	50.6	1	0.290	6	7.5	N 27 W	2.52	6.34
1854	23.6	+ 0.6	46.4	— 5.4	51.8	7	1.270	11	7.5	N 77 W	2.44	6.91
1855	25.9	+ 2.9	49.0	— 5.4	54.4	5	0.525	13	23.3	N 73 W	1.91	7.26
1856	16.0	— 7.0	34.4	—12.0	46.4	0	0.000	14	13.6	N 75 W	5.24	10.69
1857	12.8	—10.2	37.2	—20.1	57.3	3	Inap.	16	21.8	N 70 W	4.96	10.31
1858	30.0	+ 7.0	47.4	6.5	40.9	6	1.152	11	4.0	N 71 W	2.33	7.40
1859	26.4	+ 3.4	43.2	—26.5	69.7	6	1.449	19	16.4	S 81 W	3.17	8.76
1860	23.4	+ 0.4	46.4	— 6.8	53.2	6	0.740	16	8.7	N 89 W	6.09	9.37
1861	19.9	— 3.1	37.0	—11.2	48.2	4	0.685	23	20.6	N 86 W	2.92	9.30
1862	21.7	— 1.3	44.5	— 2.6	47.1	5	0.115	19	27.4	N 26 W	2.69	8.83
1863	28.1	+ 5.1	47.0	—14.0	61.0	10	1.122	17	20.6	N 61 W	1.13	7.23
1864	22.8	— 0.2	44.2	— 9.0	53.2	5	1.165	14	26.3	S 73 W	6.00	10.22
1865	17.7	— 5.3	37.2	— 9.0	46.2	1	0.440	13	14.8	N 85 W	4.80	9.39
1866	20.7	— 2.3	44.0	—14.0	58.0	4	0.522	19	10.3	N 75 W	2.98	9.34
1867	17.6	— 5.4	43.8	— 4.8	48.6	1	Inap.	21	42.0	N 55 W	3.27	6.96
1868	19.0	— 4.0	39.0	— 7.0	46.0	2	Inap.	21	14.6	S 83 W	3.97	8.91
1869	27.7	+ 4.7	45.0	— 1.0	46.0	4	0.887	12	9.8	N 72 W	3.40	9.21
1870	24.4	+ 1.4	45.0	— 3.2	48.2	8	3.412	18	21.3	S 89 W	2.63	8.98
1871	21.3	— 1.7	46.4	—13.2	59.6	8	0.864	23	43.6	S 49 W	2.56	9.84
1872	22.4	— 0.6	41.8	— 2.5	44.3	5	0.220	15	3.9	S 87 W	4.73	8.87
1873	17.7	— 5.3	46.0	—18.4	64.4	4	1.110	17	39.2	N 78 W	2.96	10.01
1874	24.8	+ 1.8	57.5	— 4.0	61.5	13	2.820	15	12.2	N 61 W	3.42	8.58
1875	16.1	— 6.9	39.0	— 8.8	47.8	1	Inap.	17	32.3	N 88 W	4.06	9.54
Res'lts to 1874.	22.96	...	43.69	—8.20	51.89	4.83	1.242	14.11	17.03	N.79 W	3.17	8.38
Excess for '75.	— 6.89	...	— 4.69	— 0.60	— 4.09	— 3.83	— 1.242	+ 2.89	+ 15.27	...	...	+ 1.16

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—FEBRUARY, 1875.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Humidity of Air.				Direction of Wind.			Result't.	Velocity of the Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.		6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.672	29.593	29.707	29.6727	10.9	17.1	19.2	15.57	— 6.98	.061	.068	.075	.070	86	72	72	76	W	S W	W	S 62 W	9.5	20.7	2.8	10.77	11.06	...	...
2	.827	.753	.580	.7118	23.2	29.0	32.8	27.57	+ 4.95	.102	.133	.169	.133	82	83	90	86	W	S E	E	S 68 E	5.2	4.8	11.0	2.16	6.38	...	0.2
3	.273	28.916	.283	.1628	34.7	36.9	9.5	25.72	+ 3.05	.179	.166	.048	.122	88	76	72	78	E	S W	S W	S 37 W	12.0	22.0	17.0	6.66	15.82	0.200	...
4	.382	29.515	.796	.5897	2.6	5.2	3.7	3.42	—19.30	.037	.042	.042	.039	78	75	82	79	S W	S W	W	S 64 W	24.0	26.8	13.5	22.66	22.72	...	...
5	.985	.980	.733	.8868	- 1.0	9.3	12.4	7.55	—15.23	.028	.047	.066	.049	71	72	88	78	W	S W	S W	S 65 W	10.4	13.4	11.2	12.53	12.68	...	0.4
6	908	30.106	30.194	30.0892	4.4	3.7	- 8.2	-1.17	—24.00	.050	.042	.030	.038	95	82	96	91	W	N W	N W	N 73 W	9.0	18.5	5.0	12.19	12.97	...	0.1
7	30.090	29.900	29.710	29.8833	-14.5	6.0	1.0	-2.45	—25.34	—	—	—	—	—	—	—	—	N	S W	N W	N 10 W	5.5	1.2	3.5	2.78	3.42	...	...
8	29.528	.552	.688	.6020	0.8	0.5	-10.7	-3.95	—26.92	.039	.032	.024	.031	88	76	91	85	W	W	W	N 86 W	3.2	21.2	9.5	10.02	10.17	...	...
9	.825	.961	30.120	.9835	-13.2	- 2.0	- 7.1	-7.72	—30.75	.023	.034	.031	.029	100	90	100	96	W	W	W	N 67 W	14.0	15.0	5.5	14.14	14.42	...	...
10	30.191	.937	29.486	.8392	-11.7	11.1	20.7	7.98	—15.08	.023	.064	.105	.066	92	90	94	91	N	E	S	S 71 E	2.5	16.0	13.5	6.80	9.37	...	2.0
11	29.196	.228	.481	.3075	28.6	22.5	1.9	16.65	— 6.52	.151	.097	.039	.092	96	80	83	86	S W	S W	W	S 61 W	12.0	20.0	16.0	15.06	16.67	...	4.0
12	.537	.661	.670	.6423	- 4.6	- 1.7	- 7.1	-5.30	—28.55	.034	.037	.031	.032	96	94	100	95	W	W	W	S 85 W	18.8	13.2	5.0	12.40	12.48	...	...
13	.704	.663	.674	.6787	-13.2	6.2	- 1.3	-1.97	—25.28	.022	.041	.040	.036	95	72	94	88	N W	W	N W	N 88 W	4.0	13.6	2.8	6.21	6.65	...	...
14	.750	.810	.890	.8217	- 8.0	3.0	- 7.0	-4.58	—27.99	—	—	—	—	—	—	—	—	N W	N W	W	N 50 W	6.7	11.0	4.5	7.89	8.61	...	...
15	.875	.877	.943	.8998	-1.0	3.7	1.6	-1.87	—25.37	.025	.042	.042	.036	95	82	92	89	W	W	W	S 85 W	3.5	17.0	8.4	9.01	9.08	...	...
16	.881	.850	.750	.8203	1.6	12.7	5.9	7.33	—16.25	.042	.062	.050	.052	92	82	88	86	W	W	W	S 79 W	4.6	8.9	14.0	8.80	9.13	...	...
17	.407	.629	.860	.6503	14.2	13.1	1.2	9.12	—14.58	.076	.059	.038	.056	92	76	86	82	W	W	W	S 86 W	11.0	28.1	9.2	17.13	17.97	...	...
18	.916	.850	.668	.7990	- 8.9	9.5	4.1	2.10	—21.70	.026	.053	.048	.043	91	81	92	87	N W	S W	W	S 72 W	0.2	6.2	0.5	2.48	2.94	...	...
19	.491	.309	.213	.3215	7.3	21.8	21.8	17.33	— 6.57	.055	.106	.106	.090	93	91	91	91	N	S E	Calm.	S 80 E	1.2	5.0	0.0	1.12	2.56	...	0.3
20	.122	.073	.206	.1453	20.3	26.5	18.5	21.00	— 3.05	.102	.106	.084	.093	94	73	82	83	Calm.	W	W	S 83 W	0.0	12.0	6.7	5.10	5.21	...	0.3
21	.400	.600	.820	.6450	10.0	19.0	6.0	11.17	—13.02	—	—	—	—	—	—	—	—	W	W	Calm.	N 86 W	11.4	11.4	0.0	7.77	7.81	...	...
22	.855	.547	.489	.6178	- 0.6	29.2	40.2	24.32	0.00	.035	.131	.203	.130	85	80	81	83	N W	E	W	S 42 W	1.0	7.6	8.0	1.82	3.58	.030	...
23	.602	.651	.494	.5665	28.6	31.9	31.5	30.90	+ 6.42	.144	.158	.170	.158	92	88	96	91	N	Calm.	E	N 42 E	1.6	0.0	13.0	4.67	6.57	.140	0.3
24	.237	.315	.595	.3858	33.3	44.8	26.5	34.68	+10.67	.185	.261	.126	.190	99	88	88	90	S E	Calm.	N W	N 67 W	0.9	0.0	13.0	2.58	8.00	.100	...
25	.339	.178	.333	.2853	30.1	30.4	25.0	28.07	+ 3.27	.164	.168	.117	.143	98	99	86	92	N E	W	W	N 64 W	11.6	8.2	19.2	5.27	10.86	Inap.	1.5
26	.540	.622	.662	.6215	11.3	16.0	7.0	10.83	—14.17	.062	.057	.043	.051	86	63	74	73	W	W	N	N 80 W	13.0	13.4	5.6	12.93	13.52	Inap.	...
27	.605	.542	.634	.5965	3.0	14.9	7.3	8.22	—16.95	.043	.050	.055	.050	89	59	93	81	N W	W	N W	N 63 W	3.2	13.0	12.4	7.47	8.67	Inap.	...
28	.900	30.010	.980	.9633	- 1.6	8.0	4.0	3.90	—21.48	—	—	—	—	—	—	—	—	N W	W	N E	N 37 W	9.5	6.7	9.0	6.37	8.06	Inap.	...
	29.6455	29.6296	29.6664	29.6496	6.31	15.30	9.30	10.16	—13.48	.071	.086	.074	.076	91	80	88	86	...	...	...	...	7.48	12.68	8.56	...	9.91	0.470	9.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR FEBRUARY, 1875.

NOTE.—The monthly means of Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.194 at 10 p.m. on 6th } Monthly range
Lowest Barometer.....28.916 at 2 p.m. on 3rd } 1.278.

Self-registering Ther.
- Maximum temperature..... 47°6 on 24th } Monthly range
- Minimum temperature..... —16°0 on 13th } 63°6.
- Mean maximum temperature.....19°17 } Mean daily range
- Mean minimum temperature..... —0°65 } 19°82.
- Greatest daily range .....46°0 from a.m. to p.m. of 22nd.
- Least daily range ..... 6°0 from a.m to p.m. of 4th.

Warmest day .....24th; mean temperature.....34°68 } Difference=42°40.
Coldest day ..... 9th; mean temperature... —7°72 }

Maximum { Solar .....124°0 on 21st } Monthly range
Radiation { Terrestrial ..... —32°0 on 13th } 156°0.

Aurora observed on 2 nights, viz., 26th and 28th.

Possible to see Aurora on 19 nights; impossible on 9 nights.

Raining on 5 days; depth, 0.470 inches; duration of fall, 30.1 hours.

Snowing on 9 days; depth, 9.1 inches; duration of fall, 49.6 hours.

Mean of cloudiness, 0.59.

WIND.

Resultant direction, S. 88° W.; resultant velocity, 6.67 miles.

Mean velocity, 9.91 miles per hour.

Maximum velocity, 31.5 miles, from noon to 1 p.m. of 17th.

Most windy day, 4th; mean velocity, 22.72 miles per hour.

Least windy day, 19th; mean velocity, 2.56 miles per hour.

Most windy hour, 4 p.m.; mean velocity, 13.63 miles per hour.

Least windy hour, 7 a.m.; mean velocity, 7.40 miles per hour.

Fog on 22nd. Solar haloes on 13th, 18th and 19th. Lunar haloes on 15th, 18th and 22nd.

It will be seen from the comparative table that this month is the coldest February ever recorded in Toronto, and it is also the lowest monthly temperature recorded—the lowest previously being January, 1857, which was 12°75. From the 4th to the 18th inclusive of the present month, the daily minimum temperature never rose above zero.

COMPARATIVE TABLE FOR FEBRUARY.

YEAR.	TEMPERATURE. Mean	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity.	Mean Velocity.
	°	°	°	°	°					°		
1847	21.5	— 1.4	40.9	0.0	40.9	2	0.550	13	27.3	...	...	0.69 lbs.
1848	26.6	+ 3.7	46.6	0.0	46.6	4	0.775	8	10.8	N 65 W	2.53	5.69 mls.
1849	19.5	— 3.4	40.6	— 9.8	50.4	2	0.240	13	19.2	N 41 W	1.48	6.58
1850	26.0	+ 3.1	49.6	2.2	47.4	7	1.235	9	23.1	N 80 W	3.48	7.61
1851	27.6	+ 4.7	50.2	2.0	48.2	7	2.600	4	2.4	N 64 W	1.99	6.94
1852	23.4	+ 0.5	41.2	— 6.2	47.4	3	0.650	11	13.0	S 75 W	3.34	6.42
1853	24.1	+ 1.2	43.4	— 1.4	44.8	4	1.030	15	12.6	N 49 W	2.51	7.30
1854	21.1	— 1.8	42.8	—10.8	53.6	5	1.460	15	18.0	N 7 E	1.73	6.91
1855	15.4	— 7.5	39.0	—25.4	64.4	2	1.770	14	21.8	N 40 W	4.34	8.17
1856	15.7	— 7.2	37.8	—18.7	56.5	0	0.000	8	9.7	N 81 W	7.70	10.71
1857	28.5	+ 5.6	52.4	— 5·9	58.3	11	3.050	11	11.7	S 78 W	3.68	9.82
1858	17.0	— 5.9	42.4	— 7.3	49.7	1	Inap.	16	26.7	N 72 W	3.22	9.12
1859	26.0	+ 3.1	46.2	2.1	44.1	6	0.455	14	8.3	N 54 W	2.72	8.50
1860	22.8	— 0.1	50.2	— 8.5	58.7	7	1.330	13	18.8	N 61 W	3.28	8.73
1861	26.1	+ 3.2	46.0	—20.8	66.8	4	0.815	17	29.7	N 77 W	5.86	10.58
1862	22.5	— 0.4	37.8	— 5.2	43.0	3	0.180	17	23.1	N 55 W	3.93	8.52
1863	22.4	— 0.5	41.5	—19.8	61.3	7	1.450	12	22.0	N 23 W	2.27	10.13
1864	24.3	+ 1.4	45.0	—15.0	60.0	2	0.397	14	9.5	S 84 W	6.48	10.11
1865	22.4	— 0.5	42.2	—10.0	52.2	5	0.810	11	16.8	N 23 W	3.95	8.23
1866	22.5	— 0.4	45.0	— 8.0	53.0	3	0.830	12	16.9	S 80 W	5.14	9.40
1867	28.9	+ 6.0	44.0	0.2	43.8	8	1.328	13	13.4	N 57 W	1.58	8.85
1868	17.2	— 5.7	45.0	—11.5	56.5	1	0.040	16	32.8	N 69 W	3.23	10.84
1869	25.0	— 2.1	46.0	— 1.0	47.0	2	0.165	19	39.7	N 34 W	4.18	10.04
1870	21.5	— 1.4	40.6	— 6.6	47.2	2	0.520	18	20.1	N 29 W	2.84	8.10
1871	24.3	+ 1.4	48.0	—15.8	63.8	3	0.040	15	23.0	N 70 W	4.26	9.87
1872	20.7	— 2.2	45.2	— 3.6	48.8	5	0.350	9	7.3	N 61 W	3.32	8.93
1873	21.5	— 1.4	43.0	—10.5	53.5	0	0.000	11	10.4	N 68 W	4.29	10.21
1874	22.8	— 0.1	42.0	0.4	41.6	6	1.150	15	19.1	N 24 W	2.46	8.12
1875	10.2	—12.7	47.6	—16.0	63.6	5	0.470	9	9.1	S 88 W	6.67	9.91
Res'lts to 1874.	22.90	...	44.09	—7.68	51.77	3.97	0.859	12.49	18.65	N 65 W	3.14	8.68
Excess for 1875	— 12.74	...	+ 3.51	— 8.32	+ 11.83	+ 1.03	0.389	— 3.49	— 9.55	...	...	+ 1.23

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THE CANADIAN JOURNAL.

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THE PRIMITIVE HISTORY OF THE IONIANS.

BY JOHN CAMPBELL, M.A.,

Professor of Church History, &c., Presbyterian College, Montreal.

The only people of antiquity of whom we possess a continuous authentic history is that of Israel. The history of the nations that dwelt within the areas of the Tigris and the Euphrates and along the shores of Nile is now in process of construction on the basis of the materials afforded by the written monuments of Babylonia and Assyria, and of Egypt. The antiquity, I do not say of these monuments, but of the times and persons they treat of, exceeds that of the patriarch Abraham, with whose story the annals of Israel begin. No such antiquity has been claimed for the Greek tribes as integers among primitive nationalities, because they are supposed to have arisen into a state of civilization in Hellas, many centuries after their ancestors, as savage nomads, had taken possession of that land. The unanimous voice of tradition and history, with that of a candid reasoning from analogy, is opposed to such a gratuitous hypothesis. The Greeks, whether Javan or any other son of Japheth be their ancestor, struck out for themselves no new track of migration through the inhospitable wilds of Armenia and Asia Minor in quest of the peninsula of Europe, which became the home of some of them in the accepted historical period. They simply followed in the westward course of the families of mankind from the plain of dispersion. First to move in that direction were the descendants of Ham, who peopled Arabia, Egypt and Palestine. Into these same countries other emigrants from Shinar found their way. There is little evidence that the children of Shem, with the exception of the family

of Abraham, passed much beyond the bounds of the Tigris and Euphrates until many centuries after the dispersion. But the tribes that in Abraham's time dwelt in Palestine to the east of the Jordan, including the Rephaim, Zuzim, Emim, Horim, Avim, etc.,[1] were the major part of the great Japhetic wave, that, following close upon the footsteps of the sons of Ham, soon engulphed, equally in Palestine, Arabia and Egypt, these heirs of the curse, and either drove them to more remote settlements or made them, from the beginning, a race of servants. Neither in Arabia, nor in Palestine, nor in Egypt, have we any record of Hamitic supremacy, or even of local rule and authority. Menes, the first Egyptian ruler, with all the solar line of Seb and Ra with which he connects, was a Japhetic Horite.[2] To the same distinguished family, Hamor and his son Shechem in the time of Jacob[3], and Aholibamah, the wife of Esau, belonged.[4] The Philistines, who dwelt in Gerar when Abraham sojourned there, have been proved beyond all doubt by Hitzig and myself to be a Japhetic tribe.[5] I have also shewn their affinity with the Cherethites or Cretans of the sea-coast,[6] and with the so-called Hittites, over whom Ephron, the son of Zohar, exercised authority in Hebron.[7] Undisguisable traces of Aner, Eshcol and Mamre, the Amorites, may be found by any one with sufficient knowledge who cares to look for them in the geography and traditions of Sicily and Southern Italy.[8] Palestine was the centre of a more important seat of empire, if scattered and somewhat disconnected principalities may be called an empire, than that of Babel, inasmuch as in it first the tribes of Japheth commenced to assume national names, divinities, and distinguishing characteristics, in connection with which alone history can begin to exist. It would be vain, however, to attempt the task of reconstructing the early history of the world, scattered as it must be over the traditions of these various nationalities, were it not that,

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1 Gen. xiv.; Deut. ii.

2 The Horites, Canadian Journal, May, 1873.

3 Gen. xxxiii. 18, xxxiv. 2. They are called Hivites, but this name is synonymous with Horite; Gen. xxxvi. 2, compare verse 25. The presence of the geographical name Ebal, in the region of Shechem, seems to indicate descent from the third son of Shobal.

4 *Vide supra*, Gen. xxxvi. 2, *seq.*

5 Hitzig, die Philistaer. The Shepherd Kings of Egypt, Canadian Journal, Vol. xiv. Nos. 2 and 3, April and August, 1874.

6 Shepherd Kings, Canadian Journal, Vol. xiv., No. 2, p. 199.

7 *Ib.* 163.

8 The very name Sicilia is derived from Eshcol. Ziklag and Zancle agree in Etymology. The Mamertines derive their name from Mamers the Oscan god, who is Mamre.

in the first eight chapters of the first book of Chronicles, there has been discovered a series of Gentile genealogies relating to the period of the formation of nations, with which other facts of the Bible, monumental records, and the truths embodied in national traditions may be compared, connected or identified.[9] Such comparison and identification I have so far been enabled to make with some measure of success in the case of the two important families of Shobal and Ashchur.[10]

The family to which I at present direct attention is that of Onam. Onam, the ancestor of this line, occupies a peculiar position, being counted in two genealogies relating to diverse stocks, the one being that of Shobal the Horite, the other that of Jerachmeel.[11] After going carefully over the field of monumental history and tradition, I am convinced that there were not two Onams but one only. As mentioned among the sons of Shobal, I have already referred to him in my paper on the Horites, as the eponym of On or Heliopolis in Egypt, and the brother of Ra and Month or Reaiah and Manahath.[12] But in 1 Chron. ii. 26, we read: "Jerachmeel had also another wife, whose name was Atarah; she was the mother of Onam." At the 28th verse, the descendants of Onam are given very fully, affording ample opportunities for safe comparison and identification with other genealogical records. Before proceeding, however, to the history of Onam, I must briefly introduce the family of Jerachmeel, who is called his father.

In 1 Sam. xxvii. 10, xxx. 29, the Jerachmeelites, or rather a remnant of them, are represented as inhabiting the southern part of Judah, together with the Kenites, in the time of David; and the manner in which they are mentioned leaves no doubt that they are a Gentile family.[13] Referring to Jerachmeel's descendants other than Onam, we find (1 Chron. ii. 25) Ram, Bunah, Oren and Ozem as his sons. Ahijah may be the name of his first wife.[14] Then, in the 27th verse, the three sons of Ram are given: Maaz, Jamin and Eker. Here the list seems to end; but when we turn to the 7th chapter of the same book, at the 6th verse we read, not "the sons of Benjamin" but "the sons of Jamin," who is the second son of Ram mentioned

[9] This discovery was first stated by me in my article on the Horites.
[10] *Vide* the Horites and the Shepherd Kings.
[11] Gen. xxxvi. 23; 1 Chron. i. 40, ii. 26.
[12] Canadian Journal, Vol. xiii. No. 6, 526.
[13] *Ib.* 519.
[14] Patrick's Commentary on Chronicles *in loc.*

in the 27th verse of the 2nd chapter.[15] A glance at parallel passages will at once shew that the youngest son of Jacob had no such descendant as Jediael.[16] The men of Jemini, who doubtless named Khan Minyeh[17] and contributed the Minyan connections that Hitzig discovered among the Philistines, and whose record appears, Judges iii. 15, 1 Sam. ix. 1, and elsewhere in Scripture, belonged to this Jerachmeelite line. Ram left his seal of nomenclature on many a Palestinian Rama and Rimmon; his eldest son Maaz was the ancestor of the Maachathites, whom the Israelites could not subdue, and whose kingdom flourished in the days of the Kings; and his youngest son Eker, if there is any dependence to be placed on etymology, was commemorated in Ekron, the Philistine city, and in the Maaleh Acrabbim or Ascent of the Scorpions in the south of Palestine.[18] The Emim, who were the ancient inhabitants of Moab, may possibly have been the families of Jamin, a supposition which the reference to Moab in 1 Chron. viii. 8, seems to justify, as well as the form of the name.[19]

In looking for the name of Jerachmeel in other records, we must not expect to find the final *el*.[20] Even in Palestine, his city, which bore his name, is Jericho. This is a repetition of the Chaldean Urchoe; and Jerachmeel himself is Urukh, Ur-hammu or Orchamus, the ancestral Babylonian. As Jerach, the moon-god, he connects with Ram-sin and other lunar divinities and monarchs.[20*] His memory is preserved in the Arabian traditions as Yerakh or Jorham. He has geographical memorials in the Insulae Jerachæorum and

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15 Although the distinction between sons of Jamin and sons of Benjamin has been often perceived by commentators, it has been erroneously taken for granted that the former was a mere abbreviation of the latter.

16 Compare Gen. xlvi. 21, Num. xxvi. 38.

17 Khan Minyeh represents Caphar-Naum. So the Septuagint version of Job renders Zophar the Naamathite by Zophar the Minyan. For Minyan remains in Palestine see Hitzig, die Philistaer.

18 The form of Eker, Ekron, and Acrabbi is peculiar, *ayin* being the initial letter. Eker would thus have a sound approaching Geker, and Acrab would give a perfect Cecrop. The scorpion and crab in many languages are derived from the latter word.

19 The families of 1 Chron. viii. 8, etc., unite with those of the seventh chapter by the identity of Shaharaim with Ahishahar of vii. 10. He is the grandson of Jediael and great grandson of Jamin.

20 Although the final *l* is preserved in certain languages, and is even found at times side by side with the same root destitute of it, as a rule, it does not appear out of the Semitic area. Seb, Sabus, Siva represent Shobal; Zeraheen even is the modern name of Jezreel; so that Jerachmeel may be expected to stop at Jerach, or at farthest at Jerachm.

20* The root of Jerachmeel or Jerach is Chaldean, and designates the moon. The Jerachmeelites were a lunar family, the Indo-European moon appearing in forms of Jamin, the grandson of Jerachmeel. The Babylonian *Sin* is a lunar designation. Sin-Nimi may denote Jamin.

many other places.[21] The Minaei and Gerrhaei preserved the names of his grandsons Jamin and Eker;[22] but, better still, tradition gives as his sons or descendants, Yemen and Muzaz, and informs us that Ishmael married a daughter of the latter, thus acquiring a right to the guardianship of the Caaba at Mecca, which bore his name.[23] Jarhibaal, the well-known moon-god, presents us with a fuller form of the name of this ancient hero.[24] Did time permit I might proceed to the proof of a statement which I unhesitatingly make, that he, and not Abraham, is the Indian Brachma.[25] His son is the legendary Egyptian Rhampsinitus.[26] Latin traditions are far from ignoring Jerachmeel; for, in an abbreviated form, like that of the Arabic Ram-allah, he is the Romulus of Livy and other historians of Rome, while Remus and Rome itself are but forms of the word Ram, which designates his son.[27] Numa, in all probability, is the Latin rendering of Jamin.[28] The Greek Orchomenos, with its ancient monarch of the same name, and its Minyan line and King Eteocles, carry us

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[21] See authorities in Jervis' Genesis Elucidated, 191, 195, 198, 204; also Sale's Koran, Preliminary Discourse; Lenormant and Chevalier's Manual of the Ancient History of the East, vol. ii.

[22] Strabo and Pliny, with other Geographers, refer to these tribes, and the latter gives a tradition of their Grecian origin.

[23] See Jervis' Genesis, 191, 195. Muzaz and Modad are forms of the same name. Mecca is another form. The original Maaz is really Magaz. It is worthy of note that Rahma (Ram) was a deity of Yemen.

[24] Guigniaut, Religions de l' Antiquité, ii. 1035. Jaribolus is a name answering to the Greek Eurypylus. Eurynome connected with Orchamus is a similar form. Hierombaal of Sanchoniatho is made the same by Guigniaut.

[25] Brahma may rather denote Ram the son of Jerachmeel, with the prefix of the Coptic article, answering to the Egyptian Piromis. According to Grote, Erechtheus, whom I shall yet identify with Jerachmeel, denotes divine and primitive Attic man. See the Coptic Element in Languages of the Indo-European Family, Canadian Journal, December, 1872. A similar form to Brahma is the Greek Phoroneus, who is Ram, his sons Car and Mysus being Eker and Maaz.

[26] I can hardly doubt that Rhampsinitus is a Greek rendering of Ram-sin of the Babylonian monuments. Although I believe that I can establish the connection of Jamin with the Egyptian city of Memphis, I have not found any traces of Ram other than geographical in the land of the Pharaohs. The famines of Erechtheus, Rhampsinitus and Semempses, or of Jerachmeel, Ram and Shammai, must, I think, be legends concerning an Egyptian fact. In the parallel Greek myth of Agamedes and Trophonius, the Orchomenian Erginus replaces Rhampsinitus. Both Orchomenos and Erginus denote Jerachmeel. Ram is Raman, the Babylonian air god.

[27] Ram has undoubted relations with the root Ram, common to many languages, denoting "height." Eustathius, speaking of Ramathan the old name of Laodicea, recognizes it as designating "the lofty God;" Eustathius in Dionysii Perieg, 915. The abbreviation of Jerachmeel in Romulus, and the suppression of the aspirate is similar to that which appears in Riha, the modern appellation of Jericho.

[28] The rendering of Caper-Naum by Khan Minyeh is a reversion of the order which appears in Jamin and Numa. Sin-Nimi, as already indicated, may be a similar case of Babylonian inversion.

back to Jerachmeel at Jericho or Urchoe, with Jamin and his son Jediael, or, as we should read it, Jedigel. A more notable reminiscence of the "moon of God" is found in the strange untranslatable hybrid, Erechtheus. His son Ram fades out of view, owing to the similarity which his name bears to that of his father, and to the greater glory of his descendants; but Orneus and Azeus, sons of Erechtheus, are Oren and Ozem, sons of Jerachmeel. Eker, in the Acrabbi form becomes Cecrops; and Daedalus, great grandson of Erechtheus, is the same person as Jediael, the skilful, who stands in the same relation to Jerachmeel.[29] It is not, however, my intention to exhaust the history of the Jerachmeelites in this paper, but merely to indicate the importance of the family among whose members Onam is reckoned, that it may not be found strange to see him taking his place in the foremost ranks of the great ancestors of civilized humanity. Because I find that Jerachmeelites early dwelt in Palestine, and that Jericho bears the name of their great ancestor, I do not by any means assert that Palestine was their original home. They may have been Chaldeans before they were Palestinians, as the descendants of Onam were Egyptians before they were either.

The root of the name Onam is the well-known word On, which we find designating the city of Heliopolis, in Egypt, and a Reubenite, the son of Peleth, who took part in the rebellion of Korah, Dathan and Abiram.[30] Ono also is the name of a city in the tribe of Dan, lying in the neighbourhood of many Jerachmeelite geographical names.[31] The final *am* of Onam is a common ending of proper names, as Fuerst has shown, and as is illustrated in Achuzam, Etam, Gatam.[32] It is a little remarkable that the Reubenite On should be a son of Peleth, as we find the uncommon name of Peleth among those of the descendants of Onam.[33] Reuben must in some way have been connected with an Onite family. Such is the form of the word On (אָוֶן) that it is at times rendered Aven.[34] With the

[29] It is remarkable to find Pliny, xxxvi. 13, asserting that Dædalus lived and constructed some of his ingenious works in Memphis, which, as the city of the moon, probably took its name from his father, Jamin, after whom the Egyptian district of Minyeh was called, while his son was commemorated in the region which even to-day bears the appellation Jendeli. Besides the Nubian Romali, Erchoas on the Nile, which is connected with the Nemoone on the monuments of Setei Menephthah, must refer to the family of Jerachmeel.

[30] Numbers xvi. 1.

[31] Some of these are specified on page 419.

[32] Fuerst's Hebrew and Chaldee Lexicon.

[33] 1 Chron. ii. 33.

[34] Ezekiel xxx. 17.

etymology of the word I have no time to deal, farther than to state that the Scripture and Greek names, Beth-Shemesh and Heliopolis, clearly exhibit its solar character. The Onites, like the other members of the Horite family, were pre-eminently a solar people. As for Onam himself, he was what the mythologies call a twice born hero. We have found him connected with two lines. "Jerachmeel had another wife whose name was Atarah, and she was the mother of Onam." But it is not said that Jerachmeel was his father, while he is counted as the youngest son of Shobal, the Horite. The genealogies of Onam are given in the following table down to the fourth generation from him, ascending no higher than his reputed parents. The 2nd chapter of 1st Chronicles gives us twenty generations in one line of his descendants, but on the consideration of them beyond the fourth I forbear at present to enter. Yet I desire to call attention to these twenty generations as evidence of the great importance of the family of this remarkable man.[35]

Jerachmeel = Atarah = Shobal.
|
Onam.

Shammai. Jadag.

Nadab. Abishur = Abihail. Jether. Jonathan.

Seled. Appaim. Achban. Molid. Peleth. Zaza.

The first point to engage our attention is the peculiarity which appears in the parentage of Onam. I am convinced that a passage in the Phœnician history of Sanchoniatho refers to this. There it is stated that Ilus—whom, in my paper on the Horites, I have identified with Alvan or Reaiah (Il or Ra), the eldest son of Shobal—made war upon Ouranos (Jerachmeel), and drove him out of his kingdom, taking from him Anobret (the beloved of Anu), a well-beloved concubine, whom he gave in marriage to Dagon, in whose house Demaroon, her son by Ouranos, was born.[36] There is much confusion in this passage, as in all the statements of Sanchoniatho; but the main facts bear the impress of truth. The lunar associations of the name Ouranos favour its connection with the lunar Jerah-

[35] I have not been able to pursue my investigations in this line much beyond the fourth generation, and cannot, therefore, tell in whom it is to terminate. I should not be astonished to find that Cyrus is the goal to which it points. It may, however, be a record of a Gentile family in Palestine, some of the members of which occupied the throne of Israel.

[36] Sanchoniatho's Phœnician History, by Cumberland.

meel; no better rendering of that of the mother of Onam, than the original Atarah, could be given than Ano-bret;[37] while the Shobalian connection appears most clearly in the presence of his eldest son. In classical story we find that Janus, whom I shall yet clearly prove to be this same Onam, was made the son of Creusa, the daughter of Erechtheus, who gave him birth in the house of her husband Xipheus, the latter, however, not being his father.[38] The same Creusa is made the mother of Ion, by Xuthus, whom I have already identified with Jachath, the son of Alvan or Reaiah.[39] Ion, Janus, Anu and Onam, are the same person. He is also the Vedic Indra, a form resembling An-ra or Tentyra, who is the son of Brachma, or Brihaspati, whose wife is Tara.[40] From his connection with Soma, it is plain that Indra and Atri are the same, the latter name, like Tara, representing his mother Atarah. In Egypt, also, we have no difficulty in recognizing the second wife of Jerachmeel as the goddess Athor, who is constantly found in connection with her son An-ra.

I.—EGYPTIAN CONNECTION.

There seems to be little doubt that Onam exercised sovereignty in Egypt, and that some of his descendants ruled in that land. Methodius mentions an Ionichus, whom he calls a son of Noah;[41] and the industrious Bryant has collated passages from ancient writers, preserved in the Fasciculus Temporum and the Nuremberg Chronicle, relating to him.[42] These agree in stating that Ionichus, leaving the east, went into the land of Etham and founded a kingdom, the chief city of which was Heliopolis. Ionichus or Onam was not a son of Noah by many generations, for he and Javan are two very different persons, and Bryant's supposition that he is the same as Ham is altogether unfounded. Otherwise, the information afforded by these chronicles is singularly correct. Not only do we find Onnos the first

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[37] Anobret, the beloved of Anu, is united with Oannes by Sir Henry Rawlinson. Rawlinson's Herodotus, App., Book i. Essay x.

[38] To prevent an unnecessary multiplication of notes I refer the reader who wishes to ascertain the correctness of my statements or information regarding classical mythology, to any good dictionaries of the Greek and Latin languages and mythology.

[39] The identification of Ilus, Xuthus, etc., with Alvan, Jachath, and other members of the family of the Auritæ, are to be found in my paper on "The Horites."

[40] For the same reason as stated in Note 38, I refer the reader to a manual or dictionary of Oriental mythology. It is true that Brahma and Brihaspati are often mentioned as distinct from one another, but Indra is made the son of each, and the Tara of Brihaspati, whose name contains the root *jerah* or *jerach*, is represented by Gayatri or Kattri the wife of Brahma.

[41] Methodius *apud* Bryant, Analysis of Ancient Mythology, 1807, Vol. v. p. 10.

[42] Ib.

ruler in On or Heliopolis, but the chief divinity of that city to have been Atmoo or Athom, the Etam of 1 Chron. iv. 3, the father of Jezreel or Osiris, *the sown of God*, and the eponym of the wide tract on both sides of the Red Sea known as Etham.[43] I have not been able to see the papers of Miss Fanny Corbeaux on "The Rephaim," in which, according to Mr. Bonomi, "she has some ingenious speculations to prove that the Chaldean Oannes, the Philistine Dagon, and the Mizraimite On are identical." But from the extracts in that writer's valuable manual, it is evident that Miss Corbeaux has good reasons for considering the identity established.[44] On, whether it designates Heliopolis, Tentyra or Hermonthis, or the name of a monarch, is represented with the Oannes' and Dagonian figure of a fish.[45] The solar character of the word also is as apparent in Egypt as in Palestine, where Ono and Beth Shemesh go together, or in Babylonia, where Anu unites with Shamas and similar solar divinities.

Of the antiquity and importance of On I need not speak, as these are facts well known even to the most superficial student of Egyptian history. We possess monumental evidence that An or Onnos was the first king of the city which bore his name.[46] His sway there was, however, but a temporary one, for Usecheres or Ashchur, the father of Tekoa, and the ancestor of the Shepherd line, invaded the kingdom of the Sun, and wrested Heliopolis from its monarch.[47] In this act of warfare he was aided by his son Nesteres or Achashtari, and one of the acts of the treaty of pacification was the marriage of a daughter of Onnos to Othoes or Achuzam, the elder brother of Achashtari. In my former paper on the Shepherd kings, I stated

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[43] I cannot doubt that Osiris, whom the ancients associated with primitive agriculture, and in whom many comparative philologers have found the "seed god," is the same as Jezreel. The final *el* disappears, as we have already seen, even in the modern form of the name of the wide tract in Palestine called after him. That Osiris has had attributed to him much that belongs to others, such as Othniel or Adonis and Abishur or Absyrtus, is evident. A thorough investigation of the Egyptian monumental records will, I doubt not, prove that the father of Osiris is Athom-ra or Etam. When time permits I hope to be able to set forth the story of the line of Etam, as gathered from the monuments and universal tradition. Atmoo was considered an older god than Ra, and Ra is Reaiah son of Shobal, and thus much older than Onam.

[44] Bonomi, Nineveh and its Palaces, 1805, p. 330.

[45] Osburn's Monumental History of Egypt, i. 311. In regard to Tentyra I may here state the rendering of the name given by Sir Henry Rawlinson in the Journal of the Asiatic Society, 1864, i. 1. According to him it is Din Tir or the "gate of life." Gates will yet appear largely in the Onite connection.

[46] Osirtasen I. is the earliest monarch who has left monuments, but Onnos was his predecessor and father-in-law.

[47] Osburn, i. 401.

that the wife of Achuzam was a daughter of Etam, whose name is given in 1 Chron. iv. 3, as Zelelponi.[48] I am not yet prepared to state that he did not marry Zelelponi, but there seems little doubt that one of his wives, at any rate, was a daughter of Onam. The first of the Osirtasens, who took the initial part of their name from that of their father Ashchur, was Achuzam, and his obelisk stands at Heliopolis, while he is designated the son of Onnos.[49] More correctly he should have been called his son-in-law. In the Chamber of Karnak, the name of Aches, whom I have shewn to be the same as Achuzam and Osirtasen I., appropriately appears next to that of Onnos. It may be well, however, to observe already that the name Onnos seems to stand at times for two different monarchs, one being the Janias of the lists, and, in the Bible genealogy, Jonathan, the grandson of Onam.

What was the precise effect of the invasion of Usecheres on the authority of Onnos, the scanty materials at my command will not permit me to indicate; but from the traditional and monumental evidence I possess, I am enabled in a measure to follow the fortunes of his descendants. It appears that the dynasty of Onnos was removed to Aboo-Seir;[50] and there in all probability Semempses or Semphucrates, his eldest son, exercised sovereignty. I have no monumental evidence to show that Semempses was the son of Onnos. The lists and traditions of Manetho, Eratosthenes, and others, are what I am compelled in this case to depend upon. Aboo-Seir is the ancient Busiris, and the city of the same name in the Delta is the ancient Taphosiris. They were named, not as I erroneously stated in my last paper, by Ashchur, but by Abishur, the son of Shammai, and grandson of Onam. Abishur and Aboo-Seir are the same word.

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[48] My reason for finding Zelelponi in the wife of Achuzam is stated in the Indian connection of that paper, and confirmatory reasons which, however, are not very strong, are given in that of Greece.

[49] Gliddon, in his Ancient Egypt, writes: "On the other side of the statue (dedicated by Osirtasen I, to his father, 'the sun of guardianship') a legend the same in substance is repeated; but in this legend the nomen oval is given; and thus we know that the father of Osirtasen I. was 'the sun of guardianship,' Aian or Oan. One might be tempted to consider him a Johannes, a Hanna or a John, so nearly does the phonetic value approach the eastern sound of this familiar name." "The sun of guardianship" was a father-in-law and not a father, save in guardianship, to Osirtasen I. or Achuzam, son of Ashchur. He was the earliest historical John of whom we are ever likely to have a record. In popularizing Egyptian history it would be wise to denote him by this English word, especially as his grandson was the first veritable Jonathan.

[50] The pyramids of Aboo-Seir are attributed to the 5th dynasty of Manetho.

He is the Shoure or Soris of Dr. Birch, and the Amchura of Lepsius, whose shield has been found at Aboo-Seir.[51] Am-chura and Abi-shur are too near one another in form, especially when taken in connection with the name of the place in which the former name is found, and the fact of the Heliopolitan line exercising royalty there, to allow much doubt as to their identity. The prefix *Abi* is not an essential part of the name Abishur, as we can see by reference to such designations as Abietam, Abiezer, &c. Shur, which became the name of the region north of Etam, between Egypt and Palestine,[52] and which afterwards followed the retiring tide of population up into Syria in the same form, or as Ge-shur,[53] first appears on the page of history in this son of Shammai, and grandson of Onam, and is his true title—hence the rendering Shoure or Soris. The word *Shur* in Hebrew strictly represents "a wall;" but the allied term *Shor*, with which Chaldee, Syrian and Arabic roots agree, is the Latin *taurus*. This will appear plainly in the Babylonian connections of the family of Onam. In the list of Eratosthenes, Chuter-Taurus, with a reign of seven years, following Semphucrates with one of eighteen, after Thyrillus, although much out of place, is plainly Abishur after Shammai, the successor of Jezreel, the son of Etam. He is also, no doubt, Tyreis of Manetho's third dynasty, who also has a reign of seven years, and who I had supposed might be Tiria, the brother of Ziph or Suphis. He may also, with as much probability, be Sisires of the fifth dynasty of Manetho, which is ended by the name of an Onnos, and who has a reign of the same duration.

Turning now to his predecessor, Semphucrates, in the list of Eratosthenes, and looking for him in those of Manetho, we find no difficulty in recognizing his identity with Semempses, of the first dynasty, who, like Semphucrates, reigned eighteen years. Semphucrates follows Thyrillus, and he, as I have already stated, is Jezreel, the son of Etam, whom we have found to be intimately connected, geographically and mythologically, with the family of Onam. Jezreel, *the god of seed*, with the customary omission of the final *el*, is the Egyptian Osiris;[54] but in the full form of his name, giving force to the *ayin* which appears in the last syllable, he becomes Jezregel. Re-

[51] *Vide* authorities in Kenrick's Ancient Egypt, New York, ii. 117.

[52] Gen. xvi. 7, xx. 1, xxv. 18; Exod. xv. 22; 1 Sam. xv. 7, xxvii. 8.

[53] Deut. iii. 14; Josh. xii. 5, xiii. 2, 13; 1 Sam. xxvii. 8; 1 Chron. ii. 23.

[54] I have no further authority than similarity of name for the identification of Thyrillus with Jezreel.

moving the initial *yod*, a common practice even in the recurrence of Hebrew names in the Bible, Jezreel takes the form of Zergul, and leads us into the early geography and history of Babylonia.[55] Zergul, or Zirgulla, was a very old place, and, although the most famous of the kings named Kur-galzu, or Durrigalzu, occurs late and seems to be Acharchel, the son of Harum, there was an early monarch so designated, who preceded Shamas, and who must be the Thyrillus of Eratosthenes, and the Jezreel of Chronicles.[56] In strict accordance with these facts is the so-called mythological record, that Osiris made Sem—who, in my paper on the Shepherd Kings, I unnecessarily supposed to be Achuzam—governor of part of his dominions, leaving him to share his authority with Antæus and Busiris.[57] Similar hasty conclusions marked my treatment of these latter names—Antæus being made identical with Menes and the Nechaoth of Theophilus, and Busiris with Ashchur, his contemporary.[58] I am now disposed to regard Antæus and Busiris—seeing that mythologists place them in a Libyan or western region of Egypt, and give them a tragical end, making them also the subordinates of Jezreel and Sem—as the two sons of Shammai, who are given in Chronicles as Nadab (Entef) and Abishur (Busiris of Aboo-Seir). Nadab, I can hardly doubt, is the head of the Entef line, who, whether they named Antæopolis or not, ruled for a time at Thebes and Hermonthis.[59] Now, Hermonthis is the southern An, so that nothing could be more appropriate than to find the senior line of the family of Onam exercising sovereignty there. I would be disposed to find in the ancient Tuphium, near Hermonthis, a reminiscence of Appaim, with the local prefix T, he being the only son of Nadab who had posterity, Seled, his elder brother, dying without children. A desire to make known as soon as possible the facts already possessed by me, is the only reason which has prevented my entering more fully into the consideration of the twenty generations which the book of Chronicles furnishes of the descendants of Onam, in the line of Nadab.

Abishur, Busiris or Am-chura seems to have had a tragical fate,

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[55] See App. Book 1, Essays vi. and x. of Rawlinson's Herodotus, and Mr. George Smith's Early History of Babylonia in the Transactions of the Society of Biblical Archæology, Vol. i. Part 1.

[56] *Ib.*

[57] *Vide* authorities in Guigniaut, i. 433.

[58] There is no doubt that the legendary Busiris occasionally represents Ashchur.

[59] Sir Gardner Wilkinson's Essay in Rawlinson's Herodotus, App. Book ii. Chapter 8.

in character not unlike that which is imputed to Osiris. I am still in the dark as regards his wife Abihail, an ancient Ophelia, the special mention of whose name shews her to have been a person of some importance in history. After the death of her husband Abishur, by whom she had two sons, Ahban or Achban and Molid, tradition seems to say that she became the wife of Ammon the son of Lot, and, as Semele or Amalthæa, the mother or step-mother of Coz his son, who has already been identified with the Bacchus of Classical Mythology.[60] Certain geographical analogies point to Phiala, the fountain near Memphis, of which Pliny speaks, as bearing the name of this illustrious consort.[61] Her son Ahban was famous in his day. From him Daphne or Tahpanes derived its name, which was transferred with the Phiala, derived from that of his mother, into the Geshurite region of Paneas in Northern Palestine, while his brother Molid left the name of Moladah to a town in the Geshurite region in the south of the same country. Of Ahban, however, we have something more definite than geographical names. He is the Uben-re or Aubn-ra, whose hieroglyphics have been found on the ivories at Nineveh; and Sir Gardner Wilkinson has indicated his connection with queen Amun-nou-het, who exercised the regency during the reigns of the second and third Thothmes, and who bears the title "Uben-t in the foreign land."[62] A son of Ahban would seem to be Harum the father of Acharchel, and it is not improbable that his daughter was the wife of Bechen-aten or Othniel. Certain it is that Bechen-aten, whom I have identified with Othniel son of Kenaz, married a princess of the line of Onam, Ainnin or Ainia and Tuia being her parents; but I am in doubt whether Ahban or Jonathan is represented by Ainia.[63] Amun-nou-het, who is Athotis or Atossa, is the daughter of this Onite queen by Othniel, her Bible name being Hathath.[64] Harum, who is Armais, the father of Archles and, at the same time, as Har-em-heb, the late Egyptian Horus, occupies an important position in connection with the restoration of Egyptian supremacy to the old Solar or Horite line.[65] I have not been able

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[60] In my paper on the Shepherd Kings.

[61] Pliny, viii. 46.

[62] Rawlinson's Herodotus, App. Book ii. chapter 8.

[63] *Ib.*

[64] 1 Chron. iv. 13. See Shepherd Kings.

[65] From him descended the Ramessids. Plutarch *Is. et Os.* 56, says that Orus was called Kœmin (Achban) and in the list of Tatian, Damphenophis (Daphne) precedes Orus.

to discover whether Molid, the brother of Ahban, appears in the Egyptian records.[66]

The second son of Onam is Jada or Jadag, giving to the final *ayin* its full force. His name is a remarkable one, being almost a root form of the Hebrew verb "to perceive, know." The root extends its ramifications into most of the Indo-European languages, appearing in the Greek *eido*, *oida*, the Latin *video*, the Sanscrit *wid*, *budh*, the Zend *weedem*, the Gothic *vitan*, the English *wit*, and the Sclavonic *widze*, *wedeti*, as well as in the Celtic *eduyn*[67] *gwyddoni*. The intelligent Dagon and the wise Budha are easily connected with this son of Onam, but I have not found any Egyptian monarch or divinity unless it be Ptah or Thoth, who represents him.[68] It is plain that one of the Thoths or Athothes is Achuzam the son of Ashchur. There may have been two of this name, as the list of Eratosthenes indicates, one of them being the Jada of Chronicles. Of his two sons, Jether and Jonathan, the latter only had descendants. He must be the later Onnos, the same as Janias of the lists, and the Tancheres of Manetho's fifth dynasty, who precedes Onnos. It was this Jonathan, in all probability, who founded Tentyra, the city of Athor his great grandmother, and one of the places bearing the Onite designation On. Yet his second son Zaza, who is the same as Assa son of Tankera, and Assis or Asseth the successor of Janias, has left his memorial at Saccarah.[69] The connection of Jonathan and Zaza with the Shepherd line is, I think, founded upon the fact that the former married a daughter of Achashtari, Sesortasen III. or Sesostris. Of this, however, I have only mythological, not monumental evidence. The brother of Zaza was Peleth. He must have named the nome called Paalit or Polis in Lower Egypt,[70] but I have found no trace of him upon the lists or records of the monuments. He was probably expelled from Egypt to Palestine, where he named Beth Palet and other places; and from thence would seem to have

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[66] There is a King called Melaneres associated with the Shepherds, yet connected with the line of Horus, who may be Molid.

[67] Gesenii Lexicon Hebraicum *in loc.* Pezron's Antiquities of Nations, London, 1706.

[68] The identity of Ptah and Agni, and the fact of his having been worshipped at Heliopolis, while Indra and Agni are constantly united, with other connections yet to be mentioned, lead me to think that Jadag is Ptah. Ptah was born from the mouth of Kneph as Indra from that of Pouroucha. It is worthy of note that Ptah Tatann was worshiped at Tentyra.

[69] Kenrick, ii, 121, note. With Jonathan, Janias or Tancheres, I think that the fish Notius which saved Isis and was placed by Venus among the constellations, should be connected. Hygini Poeticon Astronomicon, xli. 494.

[70] Can he have named Plinthine?

found his way to Assyria. Some of his descendants, or those among whom his descendants were the prominent class, became the mercenary soldiers of David, being known as Pelethites.[71] The Assyrian annals seem to give to Harum the son of Ahban, a daughter of Peleth as his wife, but other records tend to shew that a son-in-law of Peleth's was Achishachar or Shacharaim, the grandson of Jediael, the son of Jamin the Jerachmeelite, and the father of Ahitub and Elpaal; of the latter of whom came Eber, Misham and Shamed, the builders of Ono in Palestine.[72] As the children of Shacharaim, the Sanscrit Sarameya, were born in Moab, their story does not necessarily connect with Egypt; yet Echescus-karas, in the list of Syncellus, has links that seem to associate him with the son-in-law of Peleth.

I have already stated my belief that Ammon married Abihail, the widow of the murdered Abishur, and that thus his son Coz or Chons was contemporary with Ahban and Molid, and therefore with their second cousins Peleth and Zaza. This contemporaneousness at least is confirmed by the statement that in the reign of Assis and Khons, the calf became an object of worship.[73] The Susian connection of Armais or Har-em-heb, and later Egyptian monarchs, must be found in their relations with either Coz or Zaza.[74] I am inclined to think that Zaza heads the Susian line; that Memnon or Meonothai somehow connects with him; and that Paltos, which was reputed to be the place of his burial, is a Phœnician reminiscence of his ancestor's brother, Peleth.[75]

One other alliance with a daughter of the Onite line is worthy of note. There is monumental evidence that a prince Cephrenes mar-

[71] 2 Sam. viii. 18; xv. 18; xx. 7, 23.

[72] 1 Chron. viii. 18. The union of Lod with Ono seems to point to the Horite connection of Eber, etc., rather than the Jerachmeelite. Lod represents Lahad the brother of Achumai and Lydus of Lydia. Bilhan, the name of the father of Shaharaim, and who is given as the only son of Jediael, may, as a purely Horite appellation (Gen. xxxvi. 27; 1 Chron. i. 42. Compare Zaavan, Akan, Hemdan, Eshban, Ithran, Cheran, Dishan, Lotan, Alvan, in the same genealogies) refer to the son of Ezer, and indicate an alliance of the Horite and Jerachmeelite lines in a daughter of Jediael, from whom, as of superior dignity, the sons of Bilhan chose to count their descent.

[73] *Vide* Galloway, Egypt's Record, 234.

[74] The Susian connection appears in the Babylonian identifications of Harum and Acharchel with Armannu and Nergal and the Greek story of the Susian Memnon. But it is also visible in Sesou an epithet of Rameses II. according to M. de Rougé, in an article contributed to the Atheneum Français, 1856, part of which is appended as a note to M. de Lanoye's little book on Rameses. Lack of material prevents me from doing more than asking the question of Egyptologers, into whose hands this paper may come, "Whether the king named Skhai, Eesa, Ai, who is given as the ancestor of the first Rameses, be not identical with Assis or Assa Tankera and with Zaza, the son of Jonathan?"

[75] Strabo, xv. 3, 4.

ried Hanku, a Heliopolitan princess;[76] and, according to Mr. Osburn, Chebron Amenophis was one of the husbands of Taia, who plainly belongs to the line of Onam.[77] I am in doubt here. On the one hand, it seems that, as I stated in my paper on the Shepherd Kings, Hepher, the son of Ashchur, whom I supposed to be the father of Kenaz or Pachnas, married into this family, with which his brother Achuzam or Athothes was already connected.[78] But there seem to be many reasons for placing Cephren at a much later period, and for insisting upon the appearance of a final *n* in the name of the person with whom he is to be identified. These, and more scientific and important reasons, which will appear in the course of tracing the family of Onam through the traditions of peoples other than the Egyptians, have led me to the conclusion that Hebron or Chebron, the son of Mareshah,[79] became connected by marriage with the Onites in the line either of Shammai or of Jadag. The shield of one of his sons, Rekem or Rekamai, occurs at Lycopolis,[80] and may serve to confirm an alliance, to which the presence of such names as Shema and Shammai among his descendants, seems to testify.

Mafkat, the copper country of the Sinaitic peninsula, would appear to have unveiled its mineral treasures first to the rulers of Heliopolis; for Athor was its great divinity, and a portion of the Anu, more than two generations after their defeat by Usecheres, made their home among its mountains, coming forth at times to harass the miners whom Suphis or Ziph, the great grandson of Usecheres, kept there in a state of painful servitude.[81] Later still, when the Shepherd families were driven back to Palestine, and the Rameses ruled in Egypt; when Cretans from the coast of the Cherethites, Sicilians from Eshcol and Ziklag (an ancient Zancle), Sardinians or Dardanians from Zarthan, Achæans from Accho, Achzib and Achshaph, Lycians from Lachish, Mysians from Maachah, and many other Japhetic families resident in Palestine, invaded the land of the Pharaohs, or fought for their homes against the aggressions of its monarchs;[82] the Anu or Ionians of Gaza were not absent, but with

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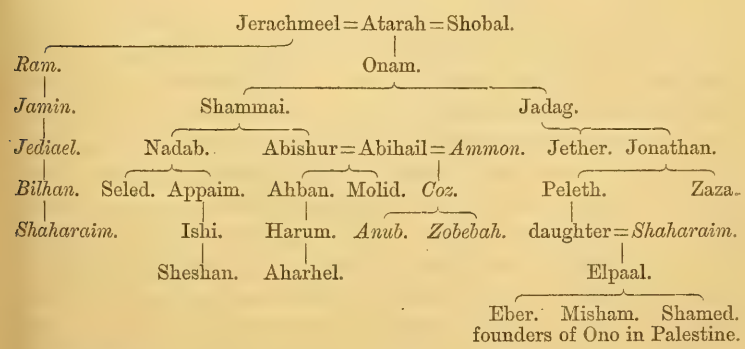
[76] Osburn, i. 450. The Athenian Onka must relate to this name.
[77] Osburn, ii. 344.
[78] Canadian Journal, Vol. xiv. No. 2, 193, 194.
[79] 1 Chron. ii. 42, *seq.*
[80] Kenrick, i. 39. He is supposed to have belonged to the Shepherd period.
[81] Lenormant & Chevalier, i. 202, 205; ii. 359.
[82] Lenormant & Chevalier, i. 249, 260.

their kinsmen, the Milesians of Moladah, the Pelethites of Japhleti, and the Kharu or Geshurites of the North, drew sword and bow against those who, like themselves, worshipped the names of their ancestral gods, An-ra and Athor.[83] Neither the Pharaohs who warred with them, nor the artists who inscribed in stone the story of their enmity and defeat, thought any more than the historians of to-day, probably, of the former glories of the Ionic race, or deemed it worth while to cast a glance at the imperishable traces of its old dominion, extending from western Aboukir to the furthermost verge of Arabia Petræa, and from Heliopolis to Hermonthis in the south. They had learned their Egyptian lesson, which so many great peoples had to learn; they had done their work in this old historic land; and now, with strength unimpaired, they were to go forth in many companies, to carry into regions less favoured the blessings of a newer civilization. Into these new countries it has been my task, and is my intention in this paper, to follow them. But, in so doing, I shall not, at least as yet, enter upon the history of a later period than that of which I have already treated. The tracks of the Ionians must be marked by the recurrence, in various mythologies and geographical areas, of the same names, facts and connections, with slight variations and a few additional items of information, as we have already identified with their history in the land of Egypt.

The following Tables exhibit the families of Onam, as given in Chronicles, with their probable connections, and the Egyptian equivalents, historical and geographical, which have been obtained for them :—

I.



[83] Kenrick, ii. 221.

II.

Urukh. *Uranus.* *Jerachmeel.* Erchoas = Athor = Seb.
An or Onnos.
Sem, Semempses or Semphucrates. *Jadag*, Ptah.
Antæus or Entef. Amchura, Shoure or Busiris = Phiala = *Amun.* *Jether.* Janias or Tankera.
Seled. Tuphium. Aubn-ra. *Molid.* *Khons.* Paalit. Assa.
Armais or Har-em-heb. *Anubis.*
Archles.

To these Tables may be added that of the probable connections of the line of Onam with that of the Shepherds :—

Usecheres. Onnos.
III. Sesostris. II. Sephres. I. Aches = daughter. Semempses. *Jadag*, Ptah?
Pachnas or Cheneres. daughter = Janias or Tankera.
Atin-re = daughter. Assis.
Athothis.

Still another genealogy, of a very imperfect character, which connects with the line of Onam, is that of Hebron :—

Laadah.
Mareshah or Mœris.
Hebron or Cephren = Hanku of Heliopolis.
Korah. *Tappuah.* *Rekem* or Rekamai. *Shema.*

II.—BABYLONIAN AND ASSYRIAN CONNECTION.

It does not follow because a name and even a royal name is found on an Egyptian monument or occupying a place in the lists of Manetho, Erastothenes, Bar-Hebræus, etc., that the person who bore the name exercised sovereignty in Egypt, or exercised that sovereignty there and nowhere else. This I state in order to prepare the way for the appearance of Chaldean and Assyrian names, royal and divine, which are identical with those that have met us in the history of Egypt. Bryant, in his elaborate "Analysis of Ancient Mythology," a work full of false notions, and based upon an erroneous etymological theory, yet containing much valuable information, finds in the Babylonians the Ionim of antiquity.[84] He points out the important fact

[84] Analysis of Ancient Mythology, iv. 205.

that the Septuagint version of Jeremiah renders the word Jonah, which our translators of the Bible have found to be derived from the verb Janah *to oppress*, by the Greek "Hellenike or Hellenic," so that "the oppressing sword" of Jeremiah xlvi. 16., l. 16, becomes "the Hellenic sword." With the Seventy, therefore, the Jonah designated the Ionian people, and, as the enemy represented by the sword was the Babylonian nation under Nebuchadnezzar, they must have recognized some identity between Babylonians and Ionians. Bryant cites also a passage from the Chronicon Paschale, in which the Ionians are spoken of as a colony from Babel, and another from Joannes Antiochenus to the same effect, which states likewise that the Ionians were instructed by Joannes, one of the race of giants.[85] The same author indulges in some ingenious speculations regarding the Jonah or dove of Babylonia, which he connects with the Hellenic traditions. In these speculations Bryant has been followed by many writers of repute in England, France and Germany, and any one who wishes to see an authoritative reference to the emblem of the dove in its mythological connections, will find it in an essay of Sir Gardner Wilkinson's, in which Athor of Egypt, Atargatis of Syria, and Semiramis of Babylonia are found together with this ancient symbol.[86] Athor, let it be remembered, is Atarah, the mother of Onam.

I have already referred to Miss Fanny Corbeaux' identification of the Egyptian An, On, or Onnos with the Oannes of Chaldea. The figure of a fish represented the Egyptian An, and Oannes or Anu has been universally recognized as the fish-god of Babylonia, who connects intimately with Atargatis or Athara, the fish-goddess of Syria, his mother. I need not repeat the story of Oannes as given by Berosus, which must be familiar to all who will find any interest in the researches of this paper. His coming into Babylonia from the Erythræan sea, marks either an eastern extension of the kingdom of Onam or the period of expulsion from Egypt, when, from Arabia Petræa, his descendants spread eastward towards the home of their ancestors. It is not difficult to trace the names of the families of Onam in those of the successors of Oannes, although these are not always mentioned in their proper order. The only member of the line of Shammai that finds a place among them is Anodaphus, or Nadab, his eldest son. Jadag, however, who is the true Dagon, is

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[85] *Ib.* v. 8, 16.

[86] Rawlinson's Herodotus, App. Book iii. Essay 1.

at once recognizable in Euedocus or Odacon, and his son Jonathan in Annedotus. Alorus, called in the same legend the first ruler of Chaldæa, is Alvan, son of Shobal, the Il or Ra of Babylonia and Egypt.[87] Xisuthrus, who appears during the same period, is Sesostris, whom I have supposed to be the father-in-law of Jonathan.[88] Urka, or Urchoe, the city of Jerachmeel, is appropriately that of Onam, or Anu, his reputed son. Anu is continually connected with Dagon or his son Jadag, and frequently with his elder son, Shamas or Shammai. In the old historical records of the Greeks, Onam's name appears in the form Ninus, the Hebrew, Chaldee and Syriac Nun, *the fish*, representing the Coptic An. The reality of this connection is apparent in the names of the descendants of Ninus, his son being Zames or Shammai, and his grandson Thurras, who is Taurus, Shur, or Abishur.[89] The valuable researches of Sir Henry Rawlinson furnish us with a fourth link in the chain of evidence. He points out that Bar-Shem is a name of Thurras, while identifying the latter word with the Persian Thura of the month Thuravahar, and the Latin Taurus. Bar-Shem simply gives Thura or Abi-Shur as the son of Shammai. Ninip, Thibbi, Givan or Kivan are, however, named by Sir Henry as forms of Bar, and he does not hesitate to associate them with Oannes.[90] They really present us with

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[87] The early monarch, or rather deity, of Babylonia seems to present in his name a combination of the two equivalents, which appear equally in Egypt and Babylonia, for the Alvan and Reaiah of Genesis and Chronicles. I have already, in my paper on the Hortes, shewn his relation to the Illyrian stock. From him, in the Alvan or Galyan form of his name, came the Hellenes, whom Bryant erroneously identifies with the Ionim.

[88] When I wrote my paper on the Shepherd Kings I was not aware of a connection which has since come to light. Zervan the son of Xisuthrus, Sarpedon the son of Asterius, Mihrab the son of Zohak or Ashdahak, Corybas of Jasion or Saturn, Visvarupa or Servara son of Tvashtar, Cerberus of Typhon, with the Egyptian god Harphre and the king Cerpheres, represent in the stories of Babylonia, Persia, Greece, India, and Egypt, Hareph or Chareph the father o Beth Gader, after whom the Serbonian bog, Seriphus, Corfu and many other places were named. As Harphre he is united with Mandou and Ritho, Mandou being his grandfather Manahath, and Ritho the wife of his father Achashtari. Rhytia, the mother of the Corybantes, is the same Ritho, and from her Rhodes received its name, she or her daughter being the original Rhodope. Hierapytna of Crete founded by the Rhodian Corybas; the presence of Phorbas, Triopas and Cercaphus in Rhodes; and many similar facts tend to justify the connection. Drepane, the old name of Corcyra or Corfu, is allied to the Greek *harpe, a curved weapon*, and both relate to the root of the Hebrew Chareph. The English word *crop* comes from the same root, as well as the word *harvest*. Names as widely separated geographically as the Greek Trophonius and the Germanic Aurboda have the same origin. The sister of Hareph bears names agreeing in form with those of her father and brother, so that she may appear as Ishtar or as Zirpanit.

[89] See authorities in Rawlinson's Herodotus, App. Book i. Essay x. Also Bryant's Analysis vi. 204. Bushire may have taken its name from Abishur.

[90] Rawlinson's Herodotus, App. Book i. Essay x. Kikupan is doubtless the same.

the Ahban or Achban, who is given as the eldest son of Abishur, and who is the same as the Egyptian Aubn-ra found at Nineveh. The Irish Gobhan, with which Sir Henry Rawlinson compares the name of Ninip or Bar, is almost identical in form with the Hebrew Achban. The Alexandrian Chronicle mentions Thutas as a descendant of Ninus, and he, I can hardly doubt, is Jadag, the same as Diodas or Adodus, who is connected with Astarte, as Anu is found to be on some Babylonian monuments. The name of the wife of Anu, which is Anata, would lead one to suppose that in Babylonia as well as in Egypt, Onam and his grandson Jonathan were sometimes confounded. Sir Henry Rawlinson has suggested some relationship between the Anu or Dis of Urchoe and the Dis, Hades, Orcus, Pluto or Plutus of Classical Mythology.[91] Urchoe I have already associated with Jerach-meel; Anu gives us Onam; Hades and Dis are two forms of the name Jadag; and Pluto or Plutus, the Indian Paulastya, is Peleth of the same line. Reminiscences of the latter are I think to be found in the name or epithet Baladan; in Belochus, the last of the Dercetides or family of Atargatis; and in the mythic Polydemon a descendant of Semiramis, who was a warrior in the army of Phineus.[92]

I can hardly imagine that Shammai, Sem or Semempses ruled or lived in Babylonia, and would be disposed, therefore, to suppose that Zames and Shamas appear in the traditional and monumental records of the Chaldæans merely as ancestors; yet Ishmi-Dagon, with his sons Shamas-Iva and Ibil-anuduma, must relate to the god Shamas and to Iva, son of Anu, who is called Misharu, a name not unlike Amchura or Abishur.[93] As for the later Shamshu, who follows Hammurabi or Khammurabi, he is, I have little doubt, Shema, the son of Hebron or Chebron, who married into the line of Onam.[94] Hebron we shall yet meet with, like his father Mareshah, as the eponym of many rivers, such as the Chaboras, Hebrus, Tiber and Severn, his father naming the Arish, Marsyas, and several others, and superseding the ancient Hebrus of his son by the more modern Maritza. Mareshah himself is the Merodach who first appears in the reign of Hammurabi.[95] It is also worthy of note that Ham-

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[91] *Ib.*

[92] Du Pin, Bibliothèque Universelle des Historiens, Amsterdam, 1708, p. 211. Ovidii Metamorph, v. 85.

[93] Rawlinson's Herodotus, App. Book i. Essay x. Anu-duma must be Jonathan.

[94] 1 Chron. ii. 43.

[95] Mr. George Smith's Early History of Babylonia, Trans. Soc. Bib. Archæol, Vol. i. Part 1.

murabi's great claim to the gratitude of posterity was the construction of a river or canal, to which he gave his own name.[96] I do not yet know where among the descendants of Onam to place the wife of this monarch, but, from the presence among her descendants of the names Shema and Shammai, I feel justified in supposing that she belonged to the line of Shammai, while other reasons would lead me to place her in the next generation after Appaim, Ahban and Molid—she being probably the daughter of one of them. Turning to other connections by marriage with the family of Onam, the first that appears is the memorable union of which the Egyptian monuments inform us, that formed an article in the treaty of peace between Onnos and Usecheres. Aches or Achuzam, the son of the latter, married a daughter of the Heliopolitan king. This Aches or Achuzam I have identified with Aos or Hea of Babylonia, whose wife is Dauke or Davkina,[97] and the latter must represent the daughter of Onam and sister of Jadag, being in form like the Idyia whom mythologists make the wife of Æetes of Colchis.

The reader of my essay on the Shepherd Kings will find many erroneous identifications under the head of the Assyrian and Babylonian connections of the Ashchurites, into which I was led by the absence of full information regarding the family of Onam. Such, I think, is the supposition that Achashtari or Xisuthrus, like Achuzam, married into the Onite line.[98] I have already indicated the probability of Jonathan, a second Onnos or Ninus, forming a union with a daughter of Achashtari. The sons of Xisuthrus or Achashtari are given in tradition as Zervan, Titan and Japetosthes. Titan, a name peculiarly solar, I shall yet show to relate to Jonathan, who is the son-in-law of the father of Zervan.[99] A sister of Zervan was Zirpanit or Zeripho, which is an Ascalonian name for Semiramis, and Semiramis the wife of Ninus was the daughter of Caystrus, who is Achashtari.[100] In this way the sons of Jonathan became associated with the Ashchurite line. The elder of these, Peleth, seems accordingly to have been an Assyrian monarch, bearing the name of Asshur-

[96] *Ib.*

[97] Rawlinson's Herodotus, App. Book i. Essay x.

[98] It is more probable, as stated in note 88, that he married a daughter of Manahath the head of the Horite line of Shobal. The marriage of his daughter to a grandson of Onam, bearing a very similar name, naturally led to the erroneous supposition.

[99] In the Greek connection Titan will appear in intimate relation with the family of Jonathan. It is presented also in the Irish and Welsh traditions. Titan was peculiarly a solar designation. Tithonus is not to be dissociated from it.

[100] Guigniaut, ii. 878, ii. 33.

Ubalat or Upalit. As I shall yet show Peleth to be the same as Hippolytus and Ephialtes, and the eponym of Japhleti in Palestine, the initial *u*, a mere rendering of an adventitious Hebrew *yod*, need not form an obstacle in the way of the identification. The synchronous history of Assyria and Babylonia informs us that a daughter of Ubalat, named Muballidat Serua, was married by Burna-buryas or Kurigalzu his son, kings of Babylonia, and that she had a son, Karahardas, who was killed by the Kassi.[101] Many things lead me to identify Burna-buryas and his son Kurigalzu with Harum and his son Acharchel, although I cannot account for the second part of the name of the former Babylonian, nor find that relation to the Onam line in the person of Ahban or Aubn-ra, which would justify the connection. I have already stated my belief that Armannu, the tutelar god of Susa, is Harum.[102] Burna-buryas and his son are Susian, while the god Nergal, who is most closely linked with Abn-ra and the Anu line, and whose relations seem to be with the same region, is unmistakably Acharchel. It is hard, however, to understand why remains of Abn or Aubn-ra should be found in Nineveh, while his son and grandson leave their traces in Babylonia, or how the two latter came to occupy so important a place in the Egyptian annals. Whatever be the value of the last-named connections, which I think the sequel will shew that I have not made without some good reasons, no one can doubt the advantages of a system, even in part erroneous, over the present chaos of ancient history. The following table presents the probable equivalents in the mythology and history of Assyria and Babylonia for the Onites of the Bible record :—

Urukh, Urhammu or Orchamus=Ishtar?= ———
|
Anu, Oannes or Ninus.

Aos or Hea=Dauke. Shamas or Zames. Odacon, Dagon or Thutas.
|
Xisuthrus,
|
Anodaphus. Zira, Kura or Thurras. *daughter.*=Annedotus or Anu-duma.
|
Givan, Kikupan or Aubn-ra. Asshur—Ubalat.
|
Armannu or Burna-buryas=Muballidat Serua.
|
Nergal or Kurigalzu.

[101] The Synchronous History of Assyria and Babylonia, by the Rev. A. H. Sayce, M.A., Transactions of the Society of Biblical Archæology, Vol. ii. Part 1.

[102] Canadian Journal, Vol. xiv. No. 2, p. 227.

To the above must be added the unconnected genealogies of Hebron :—

Merodach.
|
Khammurabi=Heliopolitan princess.
|
Shamshu.

III.—PALESTINIAN AND SYRIAN CONNECTION.

Palestine seems to have been from an early period a halting-place of various Onite families, as they passed on their way to Asia Minor and Greece in the west, or to Assyria, Persia, and India in the east. It contained three well-defined Onite areas. The first of these on the way from Egypt, and perhaps the most important, was that which went by the name of Shur, having received that designation from the son of Shammai, who was the Ab or father of the house of Shur. The Geshurites were of old the inhabitants of that land,[103] and their name is simply Shur, with a national prefix like that which occurs in Gedor. This region bordered on Gaza, which bore the name Ione,[104] the whole coast of the Cherethites lying south-west from it, being also called the coast of the Ionians.[105] To the district indicated belonged Beth Palet, or "the house of flight," an earlier Pola, "the town of the fugitives," the tradition of which Stephanus of Byzantium seems to have confounded with Gaza.[106] Gaza itself, as named Ione, and a place where Dagon was worshipped, must connect intimately with the Onam line, and is probably a form of Zaza. In the same region of southern Palestine, Moladah, a name derived from Molid, the brother of Ahban and son of Abishur, is found. Shema, near Moladah, and Mareshah, not far off, may have relations with the family of Abishur, while Cabbon, near Beth-Dagon, has an Achban look. The old Jerachmeelite region spoken of in the first book of Samuel, must have bordered upon this Onite region.[107]

The second Onite area lay to the north of the tribe of Judah; extending through the dominions of Benjamin and Dan, from the Dead Sea to the Mediterranean. It was marked by the Jerach-

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[103] 1 Sam. xxvii. 8.
[104] Steph. Byzant.
[105] The progress of Maritime Discovery, by J. S. Clarke, London, 1803, Vol. i. p. 94.
[106] Hitzig, die Philistaer, 5 *seq.*
[107] 1 Sam. xxvii. 10 ; xxx. 29.

meelite region of Jericho on the east, and on the west by the similarly Jerachmeelite Rama, Jabneh or Jamnia, and Ekron. It embraced Ataroth, Ono and Beth-Aven, Beth-Shemesh, Janoah and Taanath, Japhleti, and similar geographical designations, setting forth Atarah, Onam, Shammai, Jonathan, and Peleth. The brook Cherith, and other traces of the Cherethites, still, as in the south, proclaim the geographical connection of these Cretan or Kurd warriors with the Ionian Pelethites.[108] These Pelethites are mentioned in ii. Samuel viii. 18, xv. 18, and xx. 7, 23, in the second quotation being united with the Gittites or warriors of Gath. In a note to Wheeler's edition of Russell's Connection of Sacred and Profane History, the Greek form Pheleti is adduced as a probable original of the Latin Velites.[109] I do not doubt that the Pelethites were represented among the mercenary soldiers of the Greeks by the Peltasts. It is no objection to this identification that Peltastes originally denoted a Thracian mercenary, for it will yet appear that the Thracian stock contained a large Onite element. I would even go farther, and find the same root in the Hoplites, one of the four Athenian tribes, and the heavy-armed soldiers of Greece. Their designation presents the Japhleti form of Peleth's name, and their ancestor is appropriately the son of Ion.[110]

The third area inhabited by the descendants of Onam, in Palestine, is that in the north occupied by the Geshurites. It is near the Jerachmeelite region of Maachah, and the Maachathites are constantly associated in Scripture with the northern Geshurites.[111] It was from these Geshurites that Syria received its Gentile name, Aram being its Bible designation. Atargatis or Athara, the Syrian goddess, is Atarah. In Samen and Adad, the names of Shammai and Jadag were no doubt preserved. Syria was also called the land of Sham or Shammai; and Bryant shows that Sar, representing its eponym Abishur, entered largely into the nomenclature, mythological, historical, and geographical, of the Syrians.[112] As we find in Gaza an Ione of the Geshurite region of the south, so in that

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[108] The Cherethites and Pelethites are constantly mentioned together in Scripture, hence the German phrase, "Creti and Pleti."

[109] Vol. ii. 173.

[110] The warriors of antiquity, probably the first who adopted military discipline, were the Pelethites, and the connection of their name in after times with light and heavy-armed troops was owing to local circumstances. Hence Velites, Peltastes and Hoplites have one origin.

[111] Josh. xiii. 11.

[112] Bryant's Analysis, i. 80, 91.

of the north, Antioch appears with the same title.[113] Antioch indeed, as the sequel will prove, is a form of the name of Jonathan, and the many Khan Iounes found throughout Palestine, and which have been erroneously supposed to relate to the prophet Jonah, are stages in the progress northward of the family of Onam.[114] Stephanus of Byzantium makes the ancient inhabitants of Antioch and other Ionian colonies to have been Argives.[115] These Argives are the peoples of Jerach, Urukh or Jerach-meel. In the Geshurite region the prevailing name is that of Ahban. It is he, as the Greek Pan, who is commemorated in Banias or Paneas,[116] and in the Daphnes of Paneas and of Antioch. Phiala, or Houle, represents his mother, Abihail. Another Beth-Shemesh, and another Beth-Dagon reproduce the records of Shammai and Jadag found in the south; and Hannathon preserves the memory of Jonathan; while Hermon is undoubtedly a trace of Harum, the son of Ahban. Libanos itself may have taken its name from Ahban, with the Arabic article.[117] It is certainly remarkable to find an Ammonian region up about Paneas, justifying the connection already formed for Ammon as the stepfather of Ahban, and the mythological statement that Pan was the foster-brother of Ammon.[118] I need hardly say that the Greek Pan was worshipped at Paneas. Among the kings of Geshur, Ammihur and Talmai are mentioned.[119] Ammihur is a form very like Amchura or Abishur, and may easily have been a corruption of this ancestral name. As for Talmai, no student of the historical records of the Jews can fail to notice its etymological connection with the

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113 Steph. Byzant, Ione. He states that it was built by the Argives, who are the family of Jerach. According to a statement in Eusebius, Casus and Belus, sons of Inachus, founded Antioch. Zaza and Peleth, sons of Jonathan, may be the individuals indicated.

114 Finn, Byeways in Palestine, 168, 170, 290. Hitzig, die Philistaer, 109. In the Iounes Achs and Dors of Palestine, the progress of the Ionian, Achæan, and Dorian lines can be traced. Among the Philistine tribes those inhabiting Gaza and Ashdod would seem to have been Ionians of Ónam in the line of Jonathan, while the Ashkelonians were Amorite, the Gittites, Achæans or Hittites, and the Ekronites, Jerachmeelite, of Eker.

115 *Vide supra*, Note 113. I do not know as yet whether Argob and Argos denote the same Jerachmeelite population.

116 Paneas and the Greek Peneus must be related, especially as Daphne is represented as the daughter of Peneus. Pan was worshipped here. Banier, La Mythologie et Les Fables Expliquees par l'histoire, 1728, i. 183. Finn, Byeways in Palestine, 366.

117 *Vide* the Coptic Element in Languages of the Indo-European Family, Canadian Journal, Dec., 1872. In that paper I have shewn the identity of the Hebrew Laban with the Gælic and Erse Ban, and the connection in these widely-separated languages of the ideas of whiteness and of mountains with snow-clad summits.

118 Guigniaut, iii. 476.

119 2 Sam. xiii. 37.

Anakim, who were driven out of Kirjath Arba, or Hebron.[120] One of the sons of Anak the son of Arba was Talmai, his brothers being Sheshai and Ahiman. Sheshai is not unlike Sheshan—the name of a descendant of Appaim—in form, and Achiman is very like Achban.[121] It is possible, therefore, especially as Hebron is Kirjath Arba, and we have found the son of Mareshah bearing that name in connection with the family of Shammai, that the three chiefs of the Anakim were of Onite parentage, and that they were the leaders of an Ionian colony into the region of Geshuri. They may possibly have been Heraclids of the family of Acharchel, the son of Harum.[122]

Before dismissing the Palestinian connections of the tribes of Onam, I would direct attention to the Hebrew word "Ideona," denoting "a wizard," which is derived from the root "Jadag," and which Bryant, although utterly ignorant of the identifications which I have propounded, supposes to relate to the Ionim.[123] The reputation of the Chaldeans, of the Irish Tuatha-de-danans and other members of the family of Onam, together with the wisdom attributed to Dagon and his attendants, lead me to believe that the word Ideona may have an historical etymology, setting forth an early caste of priests and magicians. The name of one of the wise men of Egypt who withstood Moses is given in the second epistle of Paul to Timothy, as well as in other writings, as Jannes, and this, I think, may easily, while denoting an individual, point him out as a member of the Chaldean or Ionian line.[124] The following Table can simply represent the geographical equivalents in Palestine of the families of Onam :—

Jericho, Jerachmeel, Ram-allah = Ataroth = Sobal.

Ono, Beth-Aven, Khan Iounes.

Beth Shemesh. Beth-Dagon.

Netophah (?) Shur, Geshur, Syria = Phiala, Houle. ——. Hannathon, Taanath, [Antioch.

Paneas, Daphne, Cabbon. Moladah. Beth Phelet, Japhleti. Gaza.

Hermon.

[120] Josh. xv. 14; Judges i. 10.

[121] 1 Chron. ii. 31.

[122] There is no doubt that the story of the return of the Heraclids must have originated in Palestine, and that in that country is to be found the region conquered by them. Æropus, Gavanes and Cisseus, which are Heraclid names, relate to Arba, Achban or Achiman and Sheshai.

[123] Analysis iii. 155.

[124] ii. Tim. iii. 8.

IV.—CONNECTIONS IN ASIA MINOR, THRACE, AND GREECE.

Geographically, Asia Minor and Thrace should precede Greece in our search for traces of the ancient Ionian line in their westward progress, but, as the traditions of these countries and their early historical geography are contained principally in the notices of Greek writers, it will be more satisfactory to consider the three regions as one. I have already stated that the Greek Erechtheus is Jerachmeel the father of Onam, and that Ion, who is called the son of his daughter Creusa by Xuthus, is Onam himself. After Ion, the people of Asia Minor, in whose region Samos, Icarus, Mycale, Miletus and Hermus, representing Shammai, Abi-Shur, Abi-Chail, Molid and Harum, are found, were called Ionians. The same stock peopled Attica, and formed part of the population in other parts of Peloponnesus. In Epirus and Thessaly the river Ion, a tributary of the Peneus on which Dipnias stood, with the Æthices, called descendants of Janus and Camise[125] near at hand, and Passaron replaced by the modern Joannina, the capital of the Molotti, present us with a few among the many traces that await recognition of Onam and Ahban, Jadag and Abishur, Jonathan and Molid. Epidaurus of Argolis, which was anciently called Epicarus, and the most famous colony of which was under the leadership of Deiphontes, did not receive its name, as I once stated, from the Caphtorim, but from the Ionian Abishur, Deiphontes representing his son Ahban, the eponym of the Egyptian Daphne.

Another name for Onam, in addition to that of Ion, is Deion, who is called a son of Æolus. Yet Deion, or Deioneus, or Œneus, at times represents Jonathan or simply a member of the Onite family. In my paper on the Shepherd Kings, I identified Ixion and Achæus with Aches or Achuzam. The wife of Ixion was Dia, the daughter of Deioneus or Deion, just as Aches married a daughter of Onnos, and Hea, a Dauke, apparently of the Anu line. Achæus also is associated with Ion in the Greek mythology, although he is wrongly called his brother. Samos was undoubtedly named by the descendants of Shammai, but his mythological record is very brief. The only personage I have found to represent him is Samos, the son of Ancæus, whose brothers were Enudus, Alithersus, and Perilas, which may possibly be corruptions of Nadab and Abishur, with an

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[125] Guigniaut, ii. 440, 1215.

Egyptian form of Aharhel, the descendant of the latter. The early connections of Samos are with Anæa in Caria, and its first colony came from Epicarus or Epidaurus, under Procles, a descendant of Ion, who must represent such a Coptic form of Acharchel. Leogoras, called the son of Procles, is one of the links which seem to connect the Locrians with Abishur, although I cannot tell where the connection is to be made. Abderus, the Locrian, who was torn to pieces by the mares of Diomedes, is the same person as Absyrtus, whose body was cut to pieces by the Argonauts and thrown into the sea; as Icarus, drowned in the Ægean; and Icarius, killed by the shepherds to whom he revealed the use of wine. Euanthes of Bacchus, another wine god, in whom I find Ahban as Ahvan, is made the founder of Locri Epizephyrii, although the Opuntii present a genuine form of Ahban. Several ancient writers state indeed that the Opuntii colonized Locri Epizephyrii, and the latter word may be a corruption of Abishur. The British Lœgrians are associated in the Welsh traditions with heroes of the line of Abishur. These, and other more distant connections, which it would take too long to state, lead me to enquire whether the Locrian name may not have come from some such term as that out of which the Greeks made Leucosyrii as a designation for the Cappadocians, in whose country many Geshurite names appear. There are at least two instances in which scripture geographical names are found with an L prefix. These are Sharon and Ophrah, which appear in the forms Lasharon, Leophrah.[126] If, instead of the initial *gimel*, a *lamed* were prefixed to Geshur, it would become Lashur or Lachur, and, leaving the initial *gimel* intact, the form Lageshur would be a not unlikely one from which to derive Leucosyrii. As Herodotus informs us that the Cappadocians were anciently called Syrians, there is strong probability that such is the history of the name.[127]

Abishur was commemorated in a more easily recognized way in many parts of the area under consideration, and in many cases his name is associated with those of his descendants. We have already found him under the name Passaron among the Molotti. He is Patarus, son of Apollo (the Sun or Shamas) and Lycia, while his son Molid is Miletus, son of the same god and Deione. But Miletus

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[126] Leophrah is rendered in Greek by Leucophrys, so that Geshur might equally be rendered Leucosyria.

[127] Herodotus, i. 72.

is said to have been founded by Codrus, the son of Melanthus of Athens, Melanthus being but another form of Molid. From an adventure of this Melanthus, the Apaturian festival, one strictly Ionic, and celebrated both in Attica and Asia Minor, is recorded to have taken its origin. Apaturia is a word derived from Abishur. Patera, Petra and Abadir are three terms relating to ancient idolatry that had the same original. The Patera, a sacrificial implement out of which wine was poured, belonged peculiarly to the worship of Apollo Patareus. At Daphne, near Antioch, which has already been shewn to commemorate Ahban the son of Abishur, there was a statue of Apollo with the patera, as well as in many other places famous for his worship. This patera relates also to Abihail, the wife of Abishur, for it is the same as Phiala, the cup that fell into Arethusa. We have already had wine associated with Abishur and his line in Ancæus, the king of Samos, who lost his life, when, leaving his cup to meet a boar that was ravaging his vineyard, he gave rise to the proverb, "There's many a slip 'twixt the cup and the lip;" and in Icarius, whom the shepherds, with whom he shared the gift of Bacchus, put to death. The stories of the Indian Soma and the Germanic Kvasir will yet enable us to understand how Abishur may fitly have been represented by that which no etymology of his name can afford.[123] The personality connected with the patera is given in the legend that Patarus was a son of Apollo. With Patarus there is good reason for associating Patreus, the mythical founder of Patræ in Achaia, for this city is said to have stood on the site of an Ionian Anthea, and many of the legends concerning Pan relate to the same place. Whether the words Petros and Petra in their mythological relations have any etymological connection with "Shur, a wall," or whether the mere similarity of the name Abishur or Patarus with an existing term denoting "rock or stone," led to the deification of Jove and Apollo under such forms, I cannot tell. Many authors of recent times have investigated these names, and they have generally concurred in viewing them as designations of solar divinities. The chapter of Bryant, in which he discusses the subject in its various elements of priestly Patres, Pateræ and Petraessæ; the sacred rocks

[123] I would be disposed to question the etymology of the word Ichor as denoting the etherial juice that flows in the veins of the gods, and to connect it historically with Icarius, Kvasir and the Soma. May not liquor have had the same origin, the verb being derived from the noun?

called Petræ at Olympus, Athens, and other places; Petra the god of Orchomenos, with Apollo, Bacchus and Zeus Patrous, Artemis and Vesta Patroa, is well worthy the attention of those who attempt the explanation of solar myths.[129] Bryant takes the common word Pater in its ancient religious associations into his comparison, and hints at what other mythologies than the classical seem to render certain, that the names Zeuspater, Diespiter, Jupiter, have some important relations with that of the son of Shammai. Jupiter Lapis is Abadir, the title given to the stone swallowed by Saturn. It is not a little remarkable to find that Ahban, the son of Abishur, is represented among the deities of Assyria by Abn-il or Abn-ra, the stone god, who is associated with Nergal or his grandson Acharchel, as Abadir or Abishur is with Terminus or his grandson Harum, Acharchel's father.[130] The fable of Daphnus being metamorphozed into a rock, may find its place among the petrean legends of the Onites.

Turning to geographical connections of Abishur, we find one in Themiscyra, of Pontus, near Œnæ, where, according to some authors, Absyrtus met his death. Apsarus, on the borders of Colchis, with a river of the same name, and Psyra or Ipsyra, an island near Chios, have the same original. Abdera, of Thrace, has been already alluded to under the name of Abderus, one of the Locrians, who, like the Abderites, carried the palm for stupidity.[130*] With it Pistura may connect, as in the same region. The presence of Aptera and Miletus in Crete is a reproduction of a geographical state of things visible in Palestine, where Shur and Moladah lay near the coast of the Cherethites. Apteras appears in mythology as an ancient Cretan king after Cydon, whom I have supposed to be Achuzam, and, strange to say, before Lapes.

For Ahban or Achban, the son of Abishur and brother of Molid, I have already suggested as an equivalent the Greek Pan, worshipped in the Geshurite region of Paneas, the Houle of that region giving the Hyle of which Pan was lord. Œneis, and Penelope, daughter of Icarius, names of his mother according to different traditions, Epione his wife, his identity with Esmun, the Ismenus of Apollo and Melia, all tend to refer Pan to the Onam line, and point him out as Ahban.

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[129] Bryant's Analysis, i. 61—76, 354—375; ii. 265.

[130] The similarity between the Hebrew Eben a stone, and Ahban, is worthy of note. The stone Abadir or Terminus, which Saturn swallowed, was thrown up by him on Mt. Petrarchus.

[130*] There was an Abdera also in Spain, in the vicinity of Onite names.

His relations with Bacchus agree admirably with those which the Latin Faunus sustains to Picus, and with the affinity already established between Ahban and Coz, the son of Ammon. Plutarch attributes Panic terrors to an Egyptian Pan, who was the general of Osiris or Bacchus (two very different persons), in connection with the death of the latter. The Ladon, which is a link in mythology uniting Pan and Daphne, is commemorated in Latinus, called the son of Faunus, and in the river Litany of northern Palestine. Euanthes, whom I have made the same as Ahban, is the father of Maron, and a son of Faunus is Turnus. Both of these names, Maron and Turnus, may represent Harum, who may also be the Indian Urva, son of Chyavana, and the Scythian Uranus, son of Acmon and grandson of Manes, as Urva is the grandson of Manu. This Manu or Manes is Ammon, who married Abihail, the wife of Abishur, and mother of Ahban. She, as Amalthæa, is said to have left her two kids to nurse the infant Jove or Bacchus, to whose line Euanthes and Faunus belong. Amalthæa became the constellation Capella, which is a better form of the name Abihail, and the Samian relations of which will appear in the mythology of Italy. Acmonia, in Phrygia, was appropriately situated upon the Hermus. Acmon, the Greek name for the *anvil*, must have etymological relations with Gobhan, the *smith* of the Celtic languages. Another form in which we meet with Ahban, is that of Capaneus. This hero is called the father of Sthenelus; but, as I have shewn in a former paper, Sthenelus is a Greek form of Othniel, who was the son of Kenaz. Still, as Othniel or Atin-re or Bechen-aten married into the family of Onam, it is possible that Ahban was his father-in-law. Latinus was the son of Faunus, while Daphne and Ladon are closely related. As Geshuri gives Leucosyrii, and Ahban, Lebanon, Othniel, without the final *el*, may give Latinus. The fact of the present Litany being the same as the Greek Leontes, taken together with the meaning of Othniel as the "lion of God," and the proximity of the river to Kanah on the one hand, and the Adonis region of Phœnicia on the other, seem to favour this view.[131] It is worthy of note that the wife of Capaneus and the mother of Epidaurus, who, as Abishur, represents his father, bear the same name, Euadne, with which the Euhadnes of the Oannes line of Babylonia invites comparison.

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[131] Adonis is Atin-re or Othniel. See Shepherd Kings.

Before dismissing the family of Shammai, its connection with Hebron, the son of Mareshah, may be briefly considered. The name of Hebron occurs under at least four different forms, as Cebren, Hyperion, Tembrion, and Cephalus, to which may be added the Latin Tiberinus. Cebrene, in the Troade, was founded by a colony from Cyme of Æolis, which was itself colonized by Locrians. Cyme is a hard form of the name Shammai or Shema, as will appear in the Latin connection. Strabo, among the many points of resemblance in the geography of the Troade and Thrace, points out the existence of a people in the latter country called the Cebrenii.[132] According to the same author, the Samians were originally Thracians. He also makes Tembrion the founder of Samos.[133] But Cephallenia, named after Cephalus, the son of Deion, which latter name has already been found to relate to the Onite family, was an Ionian island, and was anciently called Samos. Not only do we find an Ænos there as in Thrace, but three of its towns, Cranii, Taphos, and Same, may fitly bear comparison with Korah, Tappuah, and Shema, among the four sons of Hebron. Cephallenia is the same word as Chebron, with the change of *r* to *l*, one of the commonest in etymology. A daughter of Cebren is fabled to have borne the Onite name, Oenone. Cephalus is made the husband of Aurora, who is herself the daughter of Hyperion and Theia. Hyperion appears to be a name of Hebron himself, and the Egyptologist will be at once struck with the similarity of his wife's name to that of a famous Egyptian consort belonging to the family of Onnos. Aurora, however, according to other accounts, was the daughter of Titan, a solar name that will yet appear in relation to the same family, or of Pallas, who is Peleth, the son of Jonathan, and brother of Zaza.[134] Finally, we learn that Manto, called Daphne, who, according to analogy, should be the daughter of Ahban, or at any rate his near relative, married Rhacius or Tiberinus. In Tiberinus we cannot fail to see Hebron, and his epithet Rhacius is doubtless an abbreviation of the name of his father, Mareshah, who left such a form to the Arish. Similarly, Merodach is called in many lists and notices, Ærodach. The common

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[132] Strabo, xiii. 1,21.

[133] *Id.* xiv. 1, 3.

[134] The name of the daughter of Peleth is Hushim, from which the Sanscrit Ushas may come. But that of her husband is Shaharaim or *the dawn*. It is to be observed that Ushas is Sarama, in which we find a form of Shaharaim. Eos and Ushas and Hushim are doubtless the same.

geographical name, Arethusa, which has much to do with the Onite legends, is likewise derived from that of the father of Hebron, who, like his son, has a large water connection.

In a former paper I hazarded the identification of the name Attica with the geographical term Tekoa. The Ionian nationality of the Athenians, however, would favour a derivation from Jadag, and the Asty-Ashdod identity, taken along with the worship of Dagon in the latter place, tends to confirm it.[135] We are but feeling our way yet in this wide field of primitive history, and, as a distinguished English scholar in the department of comparative philology writes me, "many things will turn out wrong; at the best perhaps we may only obtain approximations, but we are opening up that great chapter in history, the epoch of a new and great civilization." The Butadæ, an Athenian deme of the tribe Oeneis, and the Attic tribe Antiochis, must furnish traces of Jadag in the Buddha form, and of Jonathan. The Oneatæ of Sicyon may also give us the latter's memorial. The son of Antiochus is Phylas, who is the grandfather of Tlepolemus and Ctesippus; but Tlepolemus and Ctesippus are El Paal and Achitub, whom I have stated to be sons of the daughter of Peleth, named Hushim, by Shacharaim, of the family of Jamin. The memorials of Shacharaim may be found in Mœsia, Dacia, and the Sarmatian region to the north; for Shaharaim is the eponym of the Sarmatian stock, and many such words as Sarmatæ and Ulpiani mark the progress of his descendants.[136] Phylas is the same person as Pylus, called a brother of Evenus, Molus and Thestius, and a son of Mars and Demonassa. In Evenus,[136*] Molus, Pylus and Thestius, the four contemporaries, Ahban, Molid, Peleth and Zaza—the two former being sons of Abishur, and the two latter of Jonathan—are set forth. We may also find Peleth in Polydorus, who with Onites, who should be his father Jonathan, is made a son of Hercules. Polyides, son of Mantius, Polydamus of Panthous, and Polybus or Polydamus of

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135 In my paper on the Shepherd Kings I gave reasons for uniting Athens and Ashdod. That there was an Ashchurite connection for Ashdod as well as for Tentyra I could not fail to perceive, but I was then ignorant of the alliance between the two families of Ashtari and Jada in the person of Jonathan that gives us Castor and Pollux in one family.

136 The Sarmatian or Sclavonic tribes descend from the Jerahmeelite stock of Jediael. From him Podolia and the Vandali received their name. Volhynia represents his son, or son-in-law, Bilhan. The Gothic name Ulphilas is an El Paal out of the true order. The Sclavonic names Michael and Hezeki may be found among the descendants of Shaharaim. 1 Chron. viii. 16, 17.

136* In the supersedence of the old name Evenus by the modern Fidari I imagine that I see a change similar to that which replaces Hebrus by Maritza, Fidari being a form of Abishur.

Antenor, are probably the same. Another name for Peleth is Poltys, a Thracian hero from whom Ænos was called Poltyobria,[137] and who seems to have been confounded with Polydorus, son of Priam, the tomb of this prince being found at Ænos. With the Thracian Poltys, Plestorus, a Thracian hero or divinity, and the Thracian Peltastes, must be associated. In Cisseus, of Thrace, the contemporary of Poltys, we may probably discover his brother Zaza. Peleth again may be Phylacus, son of Deion. He certainly is Pallas, the son of the Athenian Pandion, or of the Latin Evander, both of whom represent Jonathan; and his mother, Asteria in name, agrees with the descent already attributed to him from a daughter of Achashtari. Among the Titans, along with Pallas, appear Ephialtes, Hippolytus and Anytus, the two former of whom exhibit the Japhleti form of Peleth's name, the latter being Jonathan, his father. Otus, with Ephialtes, may be Zaza, Ossa and Pelion being named from him and his brother. Hippolyte is a name of Astydameia, and Astydameia is the mother of Tlepolemus as El Paal, the grandson of Peleth. I have already drawn attention to the Hoplites, as bearing a name similar to Hippolytus, and to their ancestor Hoples, as a son of Ion. The last identification in Greek mythology which I propose for Peleth is the famous hero Polydeukes or Pollux. He is called the brother of Castor, who is really his grandfather, Achashtari.[138] His father, Tyndareus, at once recalls Tentyra, an Onite city, founded probably by Jonathan, father of Peleth. His mother is Leda, daughter of Thestius, Thestius being a Tvashtar-like form of the name of Achashtari, and she must be the same person as Althæa, daughter of the same Thestius, and the wife of Œneus, the father of Deianira, an Onite name.[139]

Certain associations of names have led me to give to Othniel a daughter of Jonathan in marriage. Thus, he may be Demoleon, who is called the son of Antenor; and, as I have before supposed, Danaus,

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[137] Apollodorus, ii. 5, 9; Strabo, vii. vi. 2.

[138] The German Baldag the sun-god is undoubtedly Polydeukes. Hermoder his brother is really the son of his second cousin Ahban. In Indian story Rama or Harum, who is this Hermoder, is the great friend of Paulastyia. Let it be remembered that Caystrus is the grandfather of Polydeukes or Peleth; and that Janias and Assis or Jonathan and Zaza are counted in the Shepherd line.

[139] Œneus, another hero of the vine, seems to represent Jonathan, but his genealogy is discordant, presenting connections with the families of Zereth and Bethlehem, which I think he is not entitled to. Deianira is simply Dia or Dione, the common female name among the Onites, with the solar termination *ra*.

who married Phœbe, daughter of Tyndareus, and Sthenelus whose wife is improperly called a daughter of Danaus, unless the latter name has been made to do double duty, and to represent Jonathan in the Tan-cheres form as well as Othniel himself. I have already supposed it possible that Othniel was a son-in-law of Ahban, and it seems hardly likely that he married two princesses of the same line, one of whom was a generation later than the other. The weight of evidence seems to be on the side of Jonathan, but I find it as yet impossible to decide.

In the following Tables the gods and heroes with whom the families of Onam seem to be identified, are first given, and then the localities named after them. Let it be remembered that nothing could be more unreasonable than to expect in so full a genealogy as that of Onam, complete agreement with the imperfect Greek records, preserved as these have been by so many different hands, and intentionally corrupted, as must necessarily be the case in all such records, either to gratify national and individual vanity or to agree with various mythological theories :—

I.

Arcas, Argus, Uranus, Erechtheus, Orchomenus, = Cytherea = *Shobal*, Apollo.

Ion, Pandion I.
Deion, Andreus.

Samos. | Dia = *Ixion*. | Butes, chief of royal priests. Tychon, god of fortune. (?)

Enudus. Antiphates.

Icarus, Icarius, Epicarus or Epidaurus, Absyrtus, Apteras, Abderus, Patarus, Patreus. = Amalthæa or Capella.

Anytus, Onytes, Antiochus, Mantius, Panthous, Pandion II. Antenor, Tyndareus.

Pan, Capaneus, Daphnus, Deiphontes, Evenus, Euanthes, Esmun, Ismenius. Acmon.

Miletus. Molus, Melanthus,

Phylas, Pallas, Pylus, Phylacus, Polyides, Poltys, Polydeukes, Polydamas, Polydorus, Plestorus, Ephialtes, Hippolytus, Hoples.

Cisses, Cisseus, Otus (?) Thestius (?)

Astydameia, *Hippolyte*, *Deianira*. = *Hercules*.

Ctesippus. Tlepolemus.

II.

Arcadia, Argos, Orchomenus, Erchia. = Cythera = Sipylus (?)

Ionia, Ion, Ænos, Anæa, Œnoe, Œneis, &c.

Samos, Cyme, Samæi.

——— Apsarus, Psyra, Passaron, Aptera, Abdera, Patara, Patræ, Themiscyra, Icarus, Epidaurus, Leucosyrii, Locri Epizephyrii.

Peneus, Dipnias, Opuntii, Acmonia, Evenus, Ismenus.

Miletus, Molotti.

Attica, Æthices.

——— Antiochis, Joannina, Oneatae.

Poltyobria, Pelion, Pallantium, Palinthus.

Ossa, Assus.

(To be continued.)

HYBRIDITY AND ABSORPTION IN RELATION TO THE RED INDIAN RACE.

BY DANIEL WILSON, LL.D., F.R.S.E.

The progress of maritime enterprise in modern centuries has brought about a collision between civilized and savage races, in which the inevitable extinction of the latter appears to be involved. The Esquimaux may still survive in his arctic retreat, and the wretched Fuegian remain unmolested in the desolate region which he inhabits; but wherever there is an adequate temptation to settlement, the progress of colonization involves the disappearance of the inferior races. Yet the disparity is, with some at least, rather that of childhood as compared with maturity, than any essential inferiority. Some of the savage races, thus recognized as doomed to speedy extirpation, are indeed so deficient alike in physical and intellectual attributes, that the most sensitive philanthropy must recognize their fate as inevitable. But there are others, such as the Maories of New Zealand, who manifest traits of intellectual aptitude, and so great a capacity for progress, that their extinction seems to involve the loss of a hopeful element in the progress of humanity.

Yet it is the more vigorous and impulsive among the undeveloped races that appear to be doomed to speedy extinction; while docile, passive ones, like the Malay and the Negro, continue to multiply in numbers, and seem destined to survive as servile races, well adapted to be the tillers of the soil under the rule of European masters.

The American Indian is inferior in apparent aptitude for civilization, to the Maori, and lacks all the passive endurance or docility of the Negro or Malay. Yet he, too, manifests physical and intellectual traits far above those of the lowest savage races; and the abundant evidences of an ancient native civilization in different centres both of North and South America, justify regret at the inevitable extinction of races that seemed to await a historical future of their own, when the intrusive civilization of Europe arrested their progress.

But, apart from the invariable accompaniments of savage life, there is nothing repellant in the ethnical characteristics of the American aborigines; and even in border States, where the Indian savage is regarded with mingled aversion and contempt, the civilized Half-breed is admitted to an equality which neither wealth nor culture can secure for the Mulatto. This is even more apparent in British America, where the Negro long enjoyed a political equality with the White unknown even in the Free States. There, also, from whatever cause, the relations between the aborigines and the colonists have been greatly more satisfactory than any that have prevailed either in Spanish America or the United States; and one notable result has been, not only the partial preservation of the native race, but the growth of a remarkable Half-breed population, under circumstances of special interest to the ethnologist.

The favourable results of the policy of the British American Government, in its dealings with the Indian tribes, attracted the attention of the Congress of the United States in recent years; and in 1870 a commission was appointed "to inquire into, and report upon, the treatment of the Indians within the Dominion of Canada, their present condition, and the means employed to bring them into habits of civilization." In the report resulting from this it is stated, "It is now an established fact that the Indians of Canada have passed through the most critical era of transition from barbarism to civilization; and the assimilation of their habits to those of the White race is so far from threatening their gradual extinction, that it is producing results directly opposite. The official reports of the Government, published in 1869 and many previous years, furnish cautious but deliberate and concurrent testimony to beneficial progress in the modes of life of the Indians of Ontario and Quebec. One of the most positive indications on this point is their numerical increase during the last quarter of a century."

In the same report this tribute is paid to the administration of Indian affairs in Canada: "The Government has felt a just sense of the responsibility devolved upon it; has seen the necessity of treating the Indians temporarily as wards, or minors; has assumed a friendly and painstaking guardianship over them; and seems practically to have adopted the principle that whatever may have been the original stipulation in purchasing their lands, the proper measure of compensation is to place and maintain them in such a condition

that they may, if possible, as the ultimate result of their exertions, enjoy advantages at least equal to those of their former state."

In tracing this satisfactory state of things to its source, the Commissioners of the United States fail to notice one important element in the management of Indian affairs in Canada, viz., that the Indian Department is wholly unaffected by political changes. Its officers and agents hold their appointments permanently, and so become identified with their Indian wards, instead of being tempted—as in the case of the Indian agents of the United States,—to regard their appointment as a temporary one, to be turned to account mainly for their own aggrandisement. But it cannot be overlooked that hitherto the Canadian Government has had to deal with the Indian tribes within its borders under greatly more favourable circumstances than those in which the Government of the United States has stood in relation to its wild native tribes; and only now, with the extension of the Dominion, and the union of the vast territories of the North-west, and of the Pacific shores, under a common rule, is the Canadian Government called to cope with difficulties in some degree analogous to those which the United States has had to encounter in relation to the wild savage tribes of the unsettled, or partially occupied, territories in the west and south.

The great North-west, with its warlike Chippewas, Crees, Sioux, and Blackfeet; and beyond the Rocky Mountains its Babeens, Clalams, Newatees, Chinooks, Cowlitz, and numerous other native tribes: had till recently been under the control of the all-powerful fur-trading Company of Hudson's Bay. The interests of the fur-traders stimulated them to fair and honourable dealing with the native tribes; and while they had no motive to encourage the Indians to abandon their nomadic life for the civilised habits of a settled people, or even to interpose in the wars which varied the monotony of the Indians' wild hunter-life, they had so thoroughly won the confidence of the natives, that tribes at open enmity with each other were ready to repose equal confidence in the Hudson's Bay factors.

The late Paul Kane, author of "Wanderings of an Artist among the Indians of North America," informed me that when travelling beyond the Rocky Mountains he found no difficulty in transmitting his correspondence home, even when among the rudest Flathead savages. His packet, entrusted to one of the tribe, was accompanied with a small gift of tobacco, and the request to have it forwarded to

Fort Garry, or other Hudson's Bay fort. The messenger—Cowlitz, Chinook, Nasquallie, or other Indian,—carried it to the frontier of his own hunting-grounds, and then sold it for so much tobacco to some Indian of another tribe; by him it was passed on, by like process of barter, till it crossed the Rocky Mountains into the territory of the Blackfeet, the Crees, and so onward to its destination, in full confidence that the officers of the Hudson's Bay Fort would sustain the credit of the White Medicine-man (for so the painter was regarded), and redeem the packet at its full value in tobacco or other equivalent.

The personal interests of the little bands of European fur-traders thus settled in the heart of a wilderness, and surrounded by savage hunters, no less strongly prompted them to exclude the maddening fire-water from the vast regions under their control. Guns and ammunition, kettles, axes, knives, beads, and other trinkets, with the no less prized tobacco, were abundantly provided for barter. Even nails and the iron hoops of their barrels were traded with the Indians, and displaced the primitive tomahawk and arrow-head of flint or stone. Thus, curiously, the Stone-Period of a people still in the most primitive stage of barbarism has been superseded by the use of metals obtained solely by barter, and without any advance either in the knowledge of metallurgy, or in the mastery of the arts which lie at the foundation of all civilization. Long before the advent of Europeans, the Chippewas along the shores of Lake Superior had been familiar with the native copper which abounds there in the condition of pure metal. But they knew it only as a kind of malleable stone; nor have they even now learned the application of fire in their simple metallurgic processes. The root of their names for iron and copper is the same abstract term, *wahbik,* used only in compound words, and apparently in the sense of rock or stone. *Pewahbik* is iron, *ozahwahbik,* copper, literally the yellow stone. Thus they have *metahbik* on the bare rock, *oogedahbik* on the top of a rock; *kishkahbikah,* it is a precipice, &c. Silver appears to have been recognized as a distinct metal, under the name *shooneya;* but gold is only *ozahwah-shooneya,* or yellow silver. But beyond the mere gathering of the copper and silver, as they are found on the shores of Lake Superior, in a condition of nearly pure metal, and hammering them into implements and ornaments, they knew nothing of metallurgy; and it formed no part of the Hudson's Bay traders' aim to advance him beyond the stage of a savage hunter. It was incompatible with the

interests of the fur-trader to teach him any higher use of the rich prairie land than that of a wilderness inhabited by fur-bearing animals, or a grazing ground for the herds of buffalo which furnished their annual supply of pemmican; or to familiarise him with more of the borrowed arts of civilization than helped to facilitate the accumulation of peltries in the factory stores. Hence the intrusive Europeans and the native tribes have dwelt together for successive generations on terms of comparative equality, and with results of curious interest, hereafter referred to, in relation to the intermingling of the races.

In the long-settled provinces of Upper and Lower Canada it has been otherwise. There the aborigines had to be gathered together on suitable reserves, and induced to accommodate themselves in some degree to the habits of an industrious agricultural population; or to be driven out, to wander off into the great hunting grounds of the uncleared West. The exterminating native wars, which preceded the settlement of Upper Canada, greatly facilitated this; and the tribes with which the English colonists of Ontario have had to deal have been for the most part emigrants, not greatly more recent than themselves. As to the Six Nation Indians settled on the Grand River and at the Bay of Quinté (the most numerous and the farthest advanced in civilization of all the Indians in the British provinces), they are a body of loyalist refugees who followed the fortunes of their English allies on the declaration of independence by the revolted Colonies; and there is now in use, at the little Indian Church at Tuscarora, the silver communion-plate presented to their ancestors while still in the Valley of the Mohawk, in the State of New York, the gift of Her Majesty Queen Anne, "to her Indian Chappel of the Mohawks."

But the civilization which has thus resulted from prolonged and intimate relations with the Whites, has been accompanied by an inevitable admixture of blood, of which the results are abundantly manifest in the physical characteristics of the Indian settlers, both on the Grand River and at the Bay of Quinté. The system of adopting members of other tribes, including even those of their vanquished foes, to recruit their own numbers, was familiar to the Iroquois, or Indians of the Five Nations, as they were styled, before the admission of the Tuscaroras to their confederacy. In 1649, for example, the survivors of two of the Huron towns which they had ravaged, besought the favour of the victors, and were adopted into the Seneca

nation. Nor did extreme differences of race interfere with affiliation, as in the case of children kidnapped from the White colonists in their vicinity. One interesting example of the latter suffices to illustrate the extent to which such a process tended to affect the ethnical purity of the race.

In the year 1779, while the Mohawks still dwelt in their native valley in the State of New York, Ste-nah, a White girl, then about twelve years of age, was captured in one of their marauding expeditions, and adopted into the tribe. In 1868, while still living, she was described to me by an educated Mohawk Indian, as a full-blood *Sko-ha-ra*, or Dutchwoman. She grew up among her captors, accompanied the tribe on their removal from the Mohawk Valley to the shores of the Bay of Quinté, and married one of the Mohawk braves. She had reached mature years, and was the mother of Indian children, when an aged stranger visited the reserve in search of his long-lost daughter. He had heard of a captive white woman who survived among the emigrant Mohawks there, and was able, by certain marks, and the scar of a wound received in childhood, to identify his long-lost daughter. But the discovery came too late. As my Mohawk informant told me, she had got an Indian heart. She had, indeed, lost her native tongue; had acquired the habits and sympathies of her adopted people; and coldly repelled the advances of her aged father, who in vain recalled his long-lost daughter Christina in the Mohawk white-blood, *Ste-nah*. If the date of her capture and her estimated age can be relied on, she must have been in her hundred and fifth year at the time of her death, in December, 1871. I have received through one of her grandsons—himself a Mohawk chief,—a genealogical table of her descendants, from which it appears that there are at the present time fifty-seven of them living and twenty-three dead. It is thus apparent, that by the adoption of a single White captive into the tribe, there are, in the fourth generation, fifty-seven survivors out of eighty members of the tribe, all of them of hybrid character.

The influence of a single case of admixture of White blood thus followed out to its results in the fourth generation, suffices to show how largely those tribes must be affected who dwell for any length of time in close vicinity to White settlers, and in intimate friendly relations with them. The earlier French and English colonists, like the Hudson's Bay traders of later times, were mostly young adventurers,

without wives, and readily entering into alliance with the native women. The children of such unions were admitted to a perfect equality with the Whites, when trained up in their settlements; and in the older period of French and English rivalry the Indians were dealt with on very different terms from those with which they are now regarded, though even yet some memory of older relations survives.

During the wars between the French and English colonists to the north and south of the St. Lawrence, in the seventeenth and eighteenth centuries, the alliance of neighbouring Indian tribes was courted; and the traditions of the fidelity of the Hurons to the French, and the loyalty of the Iroquois to the English, are cherished as incentives to the fulfilment of obligations entered into on behalf of the little remnant of the Huron nation remaining on the River St. Charles, below Quebec; and to a liberal and generous policy towards the Six Nation Indians settled on the Grand River and elsewhere in Western Canada.

But also in the primitive simplicity of border life, the half-civilized Indian and the rude settler meet on common ground; and in some cases the friendly relations established between them have survived the more settled condition of agricultural progress in the clearings. In this respect the older colonists of Quebec fraternized far more readily with the native population than has been the case with English settlers. The relations in which the early French colonists stood to the Indians of Lower Canada bore more resemblance to those of the fur traders of the North-west in later times, and were of a kindlier nature than those of the intrusive European emigrants of the present century. Prior to the accession of Louis XIV. to the throne, the French possessions in the New World had been regarded as little more than a hunting ground to be turned to the same account as the Hudson's Bay Company's territory; and the peopling of Canada had given little promise of permanent colonization. Priests and Nuns alone varied the usual class of trading adventurers who resort to a young colony. But soon after the king reached his majority, a systematic shipment of emigrants to Canada was organized under the direction of Colbert; sundry companies of soldiers were disbanded in the colony; and then, at last, the necessity of finding wives for the settlers was recognized. Thereupon a system of female emigration, with bounties on marriage, was established. Colbert, writing to the

Canadian Intendant, tells him that the prosperity of the people, and all that is most dear to them as colonists, depend upon their securing the marriage of youths not later than their eighteenth or nineteenth year to girls at fourteen or fifteen; and the next step was to impose a fine on the father of a family who neglected to marry his children when they reached the respective ages of twenty and sixteen.

Up to this period the native women had chiefly supplied wives for the colonists; nor was this element now ignored or slighted. In the *Mémoire sur l'Etat Présent du Canada,* 1667, it is stated: "At this time it was believed that the Indians, mingled with the French, might become a valuable part of the population. The reproductive qualities of Indian women therefore became an object of attention to Talon, the Royal Intendant; and he reports that they impair their fertility by nursing their children longer than is needful; but, he adds, 'this obstacle to the speedy building up of the colony can be overcome by regulations of police.'" Thus it is apparant that the strongest encouragement was given to such alliances.

The religious element, moreover, among a purely Roman Catholic population, helped to foster a sense of equality in the case of the Christianized Indian; while the gentler and less progressive habits of the French Habitants have tended to prevent direct collision with the Indians settled in their midst. Hence in the province of Quebec, Half-breeds, and men and women of partial Indian blood, are frequently to be met with in all ranks of life; and slighter traces, discernible in the hair, the eye, the cheek-bone, and peculiar mouth, as well as certain traits of Indian character, suggest to the close observer remote indications of the same admixture of blood.

But while favouring influences in national character, political institutions, and religion, all united to encourage a more friendly intercourse between the native and European population of Lower Canada, the circumstances attendant on the settlement of new clearings have everywhere led in some degree to similar results; and experience abundantly proves the impossibility of preserving distinct two races living in close proximity to each other.

Throughout the old provinces of Upper and Lower Canada, and the Maritime Provinces, where the aborigines are mostly congregated on reserves, under the charge of Government officers of the Indian Department, they appear, with few exceptions, to have passed the critical stage of transition from a nomadic state to that of assimila-

tion to the habits of settled industry of the Whites. In proof of this, official returns of recent years confirm the idea that, so far from their extinction appearing to be inevitable, there is a preponderance in the number of births over deaths. The marriages of the women into neighbouring bands, migrations from one reserve to another, unhealthy locations of some of the settlements, and the roving habits of the least civilized tribes, all combine to modify the results; but, with few exceptions, the latest official reports continue to show a steady numerical increase. Taking the combined census of the different tribes of Ontario, Quebec, Nova Scotia, and New Brunswick, published at Ottawa in 1875, there is an increase on the whole Indian population, since 1873, of 314. But in estimating the full significance of this fact, we have to take into consideration how far the important element of hybridity modifies the conclusions to be deduced from the growing numbers of the population on the Indian reserves; though of this, the general census of 1871—otherwise so minute,—only takes such notice as suffices to show how entirely its significance was overlooked.

The native tribes of the old provinces of the Dominion, though bearing a variety of names, may all be classed under the two essentially distinct groups of Algonquins and Iroquois. Under the former head properly rank the Micmacs, and other tribes of Prince Edward's Island, Nova Scotia, and New Brunswick; and the Chippewas, including Ottawas, Mississagas, Pottawattomies, etc., of Ontario. Under the other head have to be placed not only the Six Nations—Mohawks, Oneidas, Onondagas, Cayugas, Senecas, and Tuscaroras,—but also the Wyandots, or Hurons, both of Upper and Lower Canada: though among the one were found the faithful allies of the English, while the other adhered persistently to the French; and to the deadly enmity between them was due the expulsion of the Hurons from their ancient territory on the Georgian Bay, and the extermination of all but an insignificant remnant, including the refugees on the St. Charles River, below Quebec.

The Canadian census of 1871 includes the aborigines in the enumeration of the population of the Dominion, and states the grand total of the Indians of the provinces of Quebec, Ontario, Nova Scotia, and New Brunswick, at 23,035. According to the reports of the Indian Department at the close of 1874, they now number 27,934. The latter are, no doubt, the more trustworthy returns; but

the census of 1871 is noticeable for its statement on the special statistics of the mixed race, that of Half-breeds there are only *two* in Ontario, and not one in Quebec or either of the Maritime Provinces: so little does the curious element of ethnical transformation going on in our midst attract the attention of ordinary observers.

That the Indian population, gathered on their own reserved lands under the care of Government superintendents, is not diminishing in numbers, appears to be universally admitted. But as, at the same time, the pure race is being largely replaced by younger generations of mixed blood, the results cannot be looked upon as encouraging the hope of perpetuating the native race under such exceptional conditions; nor can it be overlooked that the increase is partly begot by the addition of a foreign element. At best the results point rather to such a process of absorption as appears to be the inevitable result wherever a race, alike inferior in numbers and in progressive energy, escapes extirpation at the hands of the intruders.

In the boyhood of the older generation of Toronto, hundreds of Indians, including those of the old Mississaga tribe, were to be seen about the streets. Now, at rare intervals, two or three squaws, in round hats, blue blankets, and Indian leggings, attract attention less by their features than their dress: for in complexion they are nearly as white as those of pure European descent. The same is the case on all the oldest Indian reserves. The Hurons of Lorette, whose forefathers were brought to Lower Canada after the massacre of their nation by the Iroquois in 1649, are reported to have considerably increased in numbers in the interval between 1844 and the last census. But while the Commissioners refer to them as a band of Indians "the most advanced in civilization in the whole of Canada," they add that "they have, by the intermixture of white blood, so far lost the original purity of race as scarcely to be considered as Indians." In their case this admixture with the European race has been protracted through a period of upwards of two centuries, till they have lost their Indian language, and substituted for it a French patois. Were it not for their hereditary right to a share in certain Indian funds, which furnishes an inducement to perpetuate their descent from the Huron nation, they would long since have merged in the common stock. Yet the results would not thereby have been eradicated, but only lost sight of. Their baptismal registers and genealogical traditions supply the record of a practical, though

undesigned, experiment as to the influence of hybridity on the perpetuation of the race; and show the mixed descendants of Huron and French blood still, after a lapse of upwards of two centuries, betraying no traces of a tendency towards infertility or extinction.

In the Maritime Provinces the Micmacs are the representatives of the aboriginal owners of the soil. Small encampments of them may be encountered in summer on the lower St. Lawrence, busily engaged in the manufacture of staves, barrel-hoops, axe-handles, and baskets of various kinds, which they dispose of, with much shrewdness, to the traders of Quebec, and the smaller towns on the Gulf. So far as I have seen, the pure blood Micmac has more of the dark red, in contrast to the prevalent olive hue, than other Indians. But the Micmacs of Nova Scotia and New Brunswick reveal the same evidence of inevitable amalgamation with the predominant race as elsewhere. Dr. Dawson, of Montreal, recently applied to the Rev. S. T. Rand—a devoted missionary labouring among the Indians of Nova Scotia,—to obtain for him a photograph of a pure blood representative of the tribe. He had some difficulty in finding a single example, and states that not one is to be found among the younger generation.

In the old Provinces here referred to, the Indians are in the minority; but the same process is apparent where little bands of pioneers leave the settled Provinces and States to begin new clearings, or to engage in the adventurous life of hunters and trappers, in the Far West. The hunter finds a bride among the native women; and when at length the wild tribe recedes before the growing clearing and the diminished supplies of game, it not only leaves behind a Half-breed population as the nucleus of the civilized community; but it also carries away with it a like element, increasingly affecting the ethnical character of the whole tribe, so long as it is perpetuated through younger generations.

The same circumstances have continued, in every frontier settlement, to involve the inevitable production of a race of Half-breeds. Even the cruellest exterminations of hostile tribes have rarely been carried out so effectually as to preclude this. In New England, for example, after the desolating war of 1637, which resulted in the extinction of the Pequot tribe, Winthrop thus summarily records the policy of the victors: "We sent the male children to Bermuda by Mr. William Pierce, and the women and maid children are disposed about in the towns." Such a female population could not grow up in

a young colony, with the wonted preponderance of males, and leave no traces in subsequent generations.

Seeing, then, that the meeting of two types of humanity so essentially distinct as the European and the native Indian of America, has, for upwards of three centuries, led to the production of a hybrid race, it becomes an interesting question, what has been the ultimate result? Has the mixed breed proved infertile, and so disappeared; has it perpetuated a new and permanent type of intermediate characteristics; or has it been absorbed into the predominant European race without leaving any traces of this foreign element? These questions are not without their significance even in reference to the policy in dealing with the Indian settlements in our oldest centres of population: for the traces of this intermingling of the races of the Old and New World are neither limited to frontier settlements nor to Indian reserves.

Among Canadians of mixed blood there are men at the Bar and in the Legislature, in the Church, in the medical profession, holding rank in the army, in aldermanic and other civic offices, and engaged in active trade and commerce. A curious case was recently brought before the law courts in Ontario. A son of the chief of the Wyandot Indians settled in Western Canada, left the reserves of his tribe, engaged in business, and acquired a large amount of real estate and personal property. He won for himself, moreover, such general respect that he was elected Reeve of Anderdon by a considerable majority over a White candidate. Thereupon his rival applied to have him unseated, on the plea that a person of Indian blood was not a citizen in the eye of the law. Fortunately the Judge took a common-sense view of the case, and decided that as he held a sufficient property-qualification within the county, the election was valid.

That an Indian ceases to be such in the eye of the law, and in all practical relations to society, when he becomes an educated industrious member of the general community, and competes not only for its privileges but for its highest honours, is inevitable. But it is not with the Indian as with the Negro mixed race. The privileges and the disabilities of the Indian ward may both be cast off; but a certain degree of romance attaches to Indian blood, when accompanied with the culture and civilization of the European. The descendants of Brant and other distinguished native chiefs are still proud to claim their lineage, where the physical traces of such an ancestry would

escape the eye of a common observer. Traces of Indian descent may be recognized among ladies of attractive refinement and intelligence, and with certain mental as well as physical traits which add to the charm of their society. Similar indications of the blood of the aborigines are familiar to Canadians in the gay assemblies of a Governor-General's receptions, in the halls of Legislature, in the diocesan synods, and other ecclesiastical assemblies, and amongst the undergraduates of Canadian Universities.

But the condition of men and women of mixed blood, admitted to all the privileges of citizenship, and mingling in perfect equality with all other members of the community, is in striking contrast to that of the occupants of the Indian reserves, where they are settled, for the most part in isolated bands, in the midst of a progressive White population. Such a condition is manifestly an unfavourable one, and one, moreover, which cannot be regarded as other than transitional. They are confessedly dealt with as wards, in a state of pupilage.

Little bands of Indians, ranging from sixty or seventy to three or four hundred, and only in five cases exceeding a thousand, are thus settled in widely-scattered localities, frequently with considerable portions of the reserve lying unproductive, in the midst of good farming districts. It has become a subject for serious consideration how far it is either wise in the general interests of the country, or beneficial to the Indians themselves, to aim at perpetuating such settlements of aborigines on a few thousand acres of reserve, ignorant of the language of the community rapidly growing up around them, and retained in a state of pupilage from which there is no emancipation. Their lands are administered by officers of the Indian Department as trustees for the whole; they may use the land under certain conditions for farming, firewood, etc., but they cannot acquire personal possession. Moneys obtained for portions of the reserve which may be sold are in like manner held in trust, and the annual income divided among them, or otherwise expended on their behoof. But in all this they have no voice. Their own industry has contributed in no degree to produce the resources thus shared by them. They are as nearly as possible in the condition of minors.

A growing sense of the necessity for some modification of this system has been felt for a considerable time; and in 1867 "An Act to Encourage the Gradual Civilization of the Indian Tribes," received the Royal Assent. This Act avowedly aims at the "gradual

removal of all legal distinctions between them and Her Majesty's other Canadian subjects; and to facilitate the acquisition of property, and of the rights accompanying it, by such individual members of the said tribes as shall be found to desire such encouragement, and to have deserved it."

The Act accordingly provides the legal process whereby an educated Indian may be emancipated from his condition of tutelage, and placed in all respects on a footing of equality with his White neighbours, without forfeiting his vested rights in the common property of his people. Provision is also made for the issue of letters patent, granting to any Indian of approved sobriety and integrity, a life estate in the land allotted to him within the reserve. Though he cannot sell this or alienate it to anyone of White blood, he may dispose of it by will to his children; or in case of his dying intestate, it descends to his children in fee simple, according to the laws of inheritance of the Province.

The motives leading to such enactments are obviously humane and disinterested. But the necessity of guarding the inexperienced Indian from the schemes of designing Whites, and the difficulties in other respects in dealing with semi-civilized tribes in immediate contact with an industrious community, are apparent from the dangers which such legislation is felt to create. It tends to enfranchise, and so to withdraw from the tribe, the very men best fitted by their intelligence and virtues to be the advisers and leaders of their own people. There is, however, no great choice left. Notwithstanding all the philanthropic zeal of their friends and the best efforts of officers of the Indian Department, the inevitable tendency of the system of wardship and isolation on the Indian reserves must be to repress that individual energy and forethought which are the elements of success among the White settlers. If bands of emigrants from England, Scotland, Germany, France, or Norway, were segregated under a similar system, and precluded from free interchange and traffic with the rest of the community; while no degree of indolence or vice could alienate from them their share in the common revenue: the results would not greatly differ from what is now seen on many Indian reserves.

Hence the apparent breach of faith in the enforced removal of Indians from reserves on which White settlers are encroaching, and which in the United States has repeatedly resulted in bloodshed and

open war. In Canada such results have been averted, in part at least, unquestionably from the care exercised alike by the Imperial and Colonial authorities to protect the aborigines, as far as possible, from injustice; and to delay action until their own concurrence in the proposed change has been obtained. But it cannot be overlooked that the small numbers usually embraced in each band, and their dependent condition on their superintendents, have greatly facilitated such transfers.

In all this we see the curious conflict between the more generous sentiments of progressive civilization, and the inevitable results which its own triumphs are begetting. The collision and intermingling of dissimilar races are no novelties in the history of the world. The longer and more minutely the ethnology of Europe is studied it becomes the more manifest that its modern nationalities are the result of an intermingling of many dissimilar races of mankind. The very geographical and political nomenclature is replete with evidence of successive waves of population: Iberian, Celt, Roman, Hun, Goth, Arab, and Turk; which have followed one another in ever renewing modification of the races of the Old World.

The theory of the modern anthropologist assigns for Europe an aboriginal population, of which Rask assumed the Finn to be the typical survivor. Before the first Aryan wave of population of Celtic or other Indo-European type passed into Europe, it was already occupied by its own rude aborigines, just as the same Indo-European aggressors have found the New World in possession of native tribes, wherever they forced their way. But it is not alone in ancient sepulchral caves, barrows, or cairns, that the traces of the Allophylian races of Europe are found. The Melanochroi, or dark whites, of Professor Huxley's classification, are, as he says, "the Iberians and 'black Celts' of Western Europe;" nor are they a distinct group, but the result of the mixture of the Xanthochroi, or true white race—pale-skinned, blue-eyed, and with abundant fair hair,—with an inferior and primitive dark-skinned race, with long, prognathous skulls, which Professor Huxley classes with one of the very lowest of existing savage races, as the Australioid group.

There was a time when the thinly-dispersed population of Prehistoric Europe consisted of dark-skinned tribes, small in stature, and with hair and eyes of corresponding hue. Not only are their modern representatives to be found among the Laps, Finns, and the Iberians

of Northern and Western Europe: but everywhere in the British Isles, and throughout Western Europe, the Melanochroic elements stand out distinctly from the predominant Xanthocroic stock, among peoples speaking a common language, and unconscious of any diversity of race. Here then we see evidences of the intermingling, and the partial absorption of the dark Australioid by the later Xanthocroi, the product of which survives in the Melanochroi of Britain, France, Germany, Spain, and Italy. In Britain the contrasting characteristics of the diverse ethnical elements attracted the attention of Tacitus in the first century of our era. In Spain the Iberian still preserves the evidence of an individuality apart from the Indo-European races in the vernacular Euskara, while a large Moorish element in the Southern portion of the Peninsula perpetuates the results of another foreign intrusion within historic times.

The diversity apparent in the results of the meeting of dissimilar races in the Old World and the New, is due to the geographical characteristics of the two hemispheres. Alike by sea and land, Europe could be entered by invading colonists, gradually, and at many diverse points. Hence, the aggression of the higher races may be assumed to have begun, while the difference between them and the aborigines of Europe was much less than that which distinguishes the European from the Red Indian savage. The conquest would thus be protracted over a period, probably of many generations, and so would involve no such violent collisions as inevitably result in the destruction of savage races when brought into abrupt contact with those far advanced in civilization.

But the peculiar relations of the frontier populations of the New World, and especially of the factors, trappers, and voyageurs of the Hudson's Bay Company, with the native American tribes, have helped to create a partial equality between the civilized European and the savage; and so, to some extent, to beget results akin to those which have left such enduring evidences of the mingling of diverse races in the population of modern Europe.

This accordingly suggests a question affecting the whole relations of British and European colonists generally to the native population of new lands settled and colonized by them. Not only English, Scotch and Irish, but German, Norwegian, Icelandic, French, Polish, Russian and Italian emigrants flock in hundreds and thousands to the New World, merge in a single generation in the common stock,

and in the third generation learn to speak of themselves as "Anglo-Saxon!" The investigations of British ethnologists have well-nigh put an end to the supposed purity of an Anglo-Saxon or Anglo-Scandinavian population in all but the assumed purely Celtic areas of the British Islands; and their subdivision into Xanthochroi and Melanochroi is based on the recognition of the survival in the mixed population of modern Britain of a race-element which still perpetuates an enduring influence derived from aborigines of Europe anterior to the advent of Celt or Teuton. The power of absorption and assimilation of a predominant race is great; and ethnological displacement is no more necessarily a process of extinction now than in primitive times; though intermixture must ever be most easily effected where the ethnical distinctions are least strongly marked, and the conditions of civilization are nearly akin.

That whole tribes and nations of the American aborigines have been exterminated in the process of colonization of the New World is no more to be questioned, than that a similar result followed from the Roman conquest and colonization of Britain. Nevertheless, long and careful study of the subject has satisfied me that a larger amount of absorption of the Indian into the Anglo-American race has occurred than is generally recognised.

Fully to appreciate this, it is necessary to retrace the course of events by which America has been transferred to the descendants of European Colonists. At every fresh stage of colonization, or of pioneering into the wild West, the work has necessarily been accomplished by hardy young adventurers, or the hunters or trappers of the clearing. It is rare indeed for such to be accompanied by wives or daughters. Where they find a home they take to themselves wives from among the native women; and their offspring share in whatever advantages the father transplants with him to this home in the wilderness. To such mingling of blood, in its least favourable aspects, the prejudices of the Indian present little obstacle. Henry, in his narrative of travel among the Cristineaux on Lake Winipagoos upwards of a century ago, after describing the dress and allurements of the women, adds: "One of the chiefs assured me that the children borne by their women to Europeans were bolder warriors and better hunters than themselves." This idea recurs in various forms. The Half-breed lumberers and trappers are valued throughout Canada for their hardihood and patient endurance; the Half-breed hunters and

trappers are equally esteemed in the Hudson's Bay territory; and beyond their remotest forts, Dr. Kane reported as his experience within the Arctic circle, that "the Half-breeds of the coast rival the Esquimaux in their powers of endurance."

Mr. Charles Horetskey, in his "Canada on the Pacific," after remarking on the well-known fact that Japanese junks have been known to drift on to the Pacific Coast of America, and so contribute new elements of Mongolian character to the native population: thus proceeds to notice another element of hybridity. "There is," he says, "another mixture in the blood on the west coast of Vancouver Island, and a very marked one—the Spanish, owing to the Spaniards having long had a settlement at Nootka. Strangely enough, the Spanish cast of countenance does not show in the women, who have the same flat features as their sisters to the eastward. Nor is it so noticeable among the young men, many of whom, however, have beards—a most unusual appendage among American Indians, and of course traceable to the cause referred to. The features are more observable among the older men, many of whom, with their long, narrow, pointed faces and beards, would, if washed, present very fair models for Don Quixote."

No strict census of the Indian population of British Columbia has yet been attempted, but it is estimated in the most recent Report of the Superintendent of Indian Affairs, at 28,520. There, as elsewhere in British America, the Government is exerting itself for the protection of the native population, but under greatly less favourable circumstances than in the early settlements of Upper and Lower Canada. There indeed the strangest collision and intermixture of races is in progress; for the earliest settlements were the result of an abrupt inroad of emigrants, chiefly from the Western and Pacific States, but including the same miscellaneous band of adventurers which is everywhere drawn together by the reputed discovery of gold.

The observations of all recent travellers in the North-west have confirmed the fact that a Half-breed population already existed in the neighbourhood of each Hudson's Bay Fort which, notwithstanding its small numbers as compared with that of the native tribes, had been perpetuated long enough to effect in some material degree the native population; but in 1860, the first influx of settlers was attracted by the reported wealth of the gold diggings, and in that

year the Missionary at Port Douglas reported to the Bishop of Columbia the following return of settlers within his mission field:—

Citizens of the United States	73
Chinese	37
British subjects	35
Mexicans and Spaniards	29
French and Italians	16
Coloured men	8
Natives of Central Europe	4
Natives of Northern Europe	4
	206

Of those the sexes were—males, 204; females, 2. The admixture of blood with the native population consequent on such a disproportion of the sexes is inevitable; and though such a population is least likely to leave behind it permanent traces among settled civilized colonists, yet the condition of things which it presents illustrates the social life of every frontier settlement of the New World. One intrusive element, moreover, has a special interest in reference to American ethnology. Here we see the Mongol of Asia brought into contact with the native American race, which presents many indications of an ethnical affinity to his own; while beyond this, to the northward, the Russians have long maintained a direct intercourse between Asia and America. There accordingly, within the region of Alaska, Russian traders have contributed another element to the mingling of races; and Mr. Wm. H. Dall, in his "Alaska and its Resources," states the "Creoles or Half-breeds of Alaska" as numbering fourteen hundred and twenty-one. In 1842, they were, for the first time, qualified to enter the church as priests; and in 1865, the American expedition found Ivan Pavloff, the son of a Russian father and a native woman of Kenai, filling the office of Bidarshik, or commander of the post at Nulato. He was legally married to a full-blooded Indian woman, by whom he had a large family.

Thus far it appears that the admixture of blood is in no degree prejudicial to the native race. All along the widening outskirts of the new clearings, and wherever an outlying trading or hunting post is established, a fringe of Half-breed population is to be found marking the transitional border-land which is passing away from its aboriginal claimants. On first visiting Sault Ste. Marie, at the entrance to Lake Superior, in 1855, I was struck to find myself in the midst of

a considerable population, with all the ordinary characteristics of a frontier town, of whom few had not obvious traces of Indian blood in their veins, from the immediate Métis, or Half-breed, to the slightly-marked, remote descendant of Indian maternity, recognizable by the abundant straight black hair, the square jaw, and a singular watery glaze in the dark eye, not unlike that of an English gipsy. At all White settlements on the frontiers, or in the vicinity of Indian reserves, a similar mixed population is to be seen, employed not only as fishers, trappers, and lumberers, but engaged on equal terms with the Whites in the trade and business of the place. In this condition the population of every frontier settlement exists, and, but for the enormous direct emigration from Europe, must have largely affected the Anglo-American race. For while, as the new settlements fill up with a permanent population, the uncivilized Indians retire into the forest, the civilized Half-breeds cast in their lot with the settlers. No prejudice interferes with their enjoyment of a perfect social equality, and they disappear at last, not by extinction, but by absorption. The traces of Indian maternity are gradually effaced by the numerical preponderance of the European race; but the native element survives in the mixed community, just as Australioid, Turanian, Iberian, or other prehistoric races, still perpetuate their ethnical characteristics in the Melanochroi of Western Europe.

Everywhere colonization begins with a migration of males, and by-and-by the cry comes from Australia, Tasmania, Canada, and elsewhere, for female emigration. It is a state of things old as the dispersion of the human race, and typified in such ancient legends as the Roman Rape of the Sabines. The abstract of the United States' census of 1860 showed that the old settled states of New England are affected even more than European countries by this inevitable source of disparity of the sexes. In Massachusetts, at that date, the females outnumbered the males by upwards of 37,000; while in Indiana, on the contrary, they fell short of the males by 48,000.

In the latter case, on a frontier state, where the services of the Indian women must necessarily be turned to account in any attempt at domestic life, intermixture between the native and intruding races is inevitable; and the feeling with which it is regarded finds expression constantly throughout the genuine New World lyrics of Joaquin Miller, with his "brown bride won from an Indian town:"

> "Where some were blonde and some were brown,
> And all as brave as Sioux."

Thus the same process still repeats itself along the widening frontier of the Far West, which has been in operation on the American Continent from the days of Columbus and Cabot. Hardy bands of pioneer adventurers, or the solitary hunter and trapper, wander forth to brave the dangers of the prairie or savage-haunted forest; and to such, an Indian bride proves the fittest mate. Of the mixed offspring, a portion cling to the fortunes of the mother's race, and are involved in its fate; but more adhere to those of the white father, share with him the vicissitudes of border life, and cast in their lot with the first nucleus of a settled community. As the border land slowly recedes into the further West, new settlers crowd into the clearing; the little cluster of primitive log huts grows up into the city, perhaps the capital of a State; and with a new generation the traces of Indian blood are well-nigh forgotten: though not, on that account, necessarily effaced. If any portion of the aboriginal owners of the soil linger in the neighbourhood, they are no less affected by the predominant intruding race.

But novel experiences are to be looked for in the new provinces now forming in the great North-west. Nor has the Canadian Government failed to recognize the special difficulties to be apprehended from the new relations in which it is placed with tribes of wild Indians transferred to its jurisdiction along with the territory acquired from the Hudson's Bay Company. Returns made to an address of the House of Commons at Ottawa, dated March, 1873, disclose the jealousies and suspicions of the native tribes, and the anxiety evinced by the Government officials to remove all just grounds of complaint. Mr. Beatty, a contractor for certain surveys on the Upper Assinniboine, reported that the Portage Indians, under their chief, Yellow Quill, had absolutely forbidden any survey of their lands, and driven him and his party off the field. The Lieutenant-Governor thereafter held an interview with Yellow Quill and a party of his braves, and after a long *pow-wow* succeeded in pacifying him. Again, a party of about two thousand Sioux are reported to have left in high dudgeon, with a threat to return in force next spring; and the Hon. Alexander Morris—now Lieutenant-Governor of Manitoba, —writes to the Provincial Secretary at Ottawa, that "the Red Lake Indians on the American side have been sending tobacco to the Sioux in our territory, as it is belived, with the view of common action with regard to the Boundary Survey."

The co-operation of representatives of the United States and of the Canadian or British Government, in the Boundary Commission, excited the intensest jealousy among all the native Indian tribes on both sides of the line. It is little more than ten years since the State of Minnesota was desolated by a cruel war, carried on by the Sioux at the instigation, as was then affirmed, of Southern agents, with a view to a diversion in favour of the South during the great Civil War. A large number of the Sioux have since crossed the boundary and settled within the British lines; and the Hon. Mr. Morris writes from Fort Garry: "Some of the Sioux assist the White settlers as labourers in the summer. They have asked for land, and were led to believe that they would be assigned a reserve, and, if so, they would plant crops, and could then be removed from the settlement." But Mr. Morris specially draws the attention of the authorities to the excited state apparent among all the Western tribes, and adds: "I believe it to be in part created by the Boundary Commission. They do not understand it, and think the two nations are uniting against them."

But with the wild Sioux who, a few years since, perpetrated the bloody massacres which desolated West Minnesota, already furnishing farm labourers for the British settlers of Manitoba, it is easy to recognize the first indications of a marvellous revolution. The great prairie lands afford facilities for the rudest tribes entering upon agricultural operations in a way that was impossible among those of the thickly-wooded provinces of Ontario and Quebec. Already commissioners have negotiated arrangements with all the wild tribes of Manitoba; and treaties have been entered into, with a view, not only to the cession of their rights to the land required for settlement, but to themselves abandoning the chase, and settling down to a peaceful agricultural life. But this cannot be effected without much judgment and patient forbearance on the part of Government officials. Mr. Molyneux St. John, an Indian agent, thus writes in 1873: "The full demands of the Indians cannot be complied with; but there is, nevertheless, a certain paradox in asking a wild Indian, who has hitherto gained his livelihood by hunting and trapping, to settle down on a reservation and cultivate the land, without at the same time offering him some means of making his living. As they say themselves: 'We cannot tear down the trees and build huts with our teeth, we cannot break the prairie with our hands, nor reap the harvest, if we had grown it, with our knives.'"

Again, the Indian Agent directs attention to the wide diversity in habits, or condition, of different Indian tribes. The Portage Indians are hunters, living in buffalo-skin lodges on the prairies; the St. Peter Indians form permanent settlements, not only of birch-bark wigwams, but many of them have built log-houses for themselves. Even among the tribes already settling down to steady agricultural labour, such as the Saulteux and Swampies of Manitoba, a very great difference, both in sentiments and customs, prevails.

But the work of settlement and incipient civilization proceeds apace. Thirty-four Indian families from one tribe in Pembina are reported by the Agent as demanding their allocation of farms; the chiefs and head men of other tribes are in negotiation for farming implements, stock, etc.; and some of their demands curiously illustrate the form in which the new life thus opening up to them presents its most tempting aspects. Hoes, axes, and other indispensable implements have been readily granted to them. Ploughs, harrows, and oxen are in request, and have been conceded or promised where the Government Agent is satisfied that they will be turned to good account. But in special demand is "a bull and cow for each chief, and a boar for each reserve." "There was another promise," says Mr. Molyneux St. John, in writing to the Indian Superintendent, "a promise the Indians never omit to mention—that they should be supplied with a male and female of each animal used by a farmer."

But besides the proper agricultural requisites of oxen, ploughs, breeding-stock, seed, and farming utensils generally, every chief demands a distinguishing dress for himself and two of his braves; and, above all—with an appreciation of the essential symbol of civilized respectability which cannot fail to gratify one foremost English philosopher,—the treaty signed at the Lower Fort on the 3rd of August, 1871, has since been supplemented by a memorandum, guaranteeing "for each chief, except Yellow Quill, a buggy,"—in other words, a gig, Carlyle's famed symbol of respectability!

Mr. Tylor, Sir John Lubbock, and other searchers after an initial civilization, are puzzled at times to determine wherein its essential essence shall be assumed to consist. But when the chiefs of wild tribes of the North-west mount their gigs, it is not to be doubted that a new order of things has begun there. Here, then, we see the inauguration of a condition of things which must lead to the settlement of a numerous native population alongside of the White colonists of the

new provinces to be formed between Lake Superior and the Rocky Mountains, and that under circumstances peculiarly favouring the intermixture of the races. One of the Indian Agents, in writing to Ottawa, says: "The Indian can, of course, be dealt with on this basis: '*$3 a head, and continue hunting and fishing till you die, or are civilized off West;*' or he can be induced to settle on his reserve, and add to the working portion of the population." The latter more generous and philanthropic process is that which is now aimed at; and the experience on older reserves of Ontario and Quebec should teach the authorities rather to favour and facilitate the interblending of the White and Red population of the prairies, than to foster rival and conflicting interests, which are sure to end in impeding the White settlers, and injuring still more the civilized Indians.

But the intermingling of the Red and White races is no novelty in the region where the Province of Manitoba now invites the influx of European emigration. There has long existed on the Red River a settlement, begun in 1811 under the auspices of Lord Selkirk, and afterwards transferred to the Hudson's Bay Company, originally formed of hardy Orkney men and Sutherlandshire Highlanders. But in 1813 the population did not exceed a hundred in number; and in the subsequent rivalry between the Hudson's Bay and North-west Companies, no effort was spared to break up the infant colony. On the amalgamation of the companies, the settlement revived; and immediately prior to the great fur company's supremacy coming to an end, it numbered upwards of two thousand Whites, chiefly occupied in farming, or in the service of the company. At a later date, another settlement was formed on the Assinniboine River, chiefly by French Canadians. In those, as at the forts and trading-posts of the Hudson's Bay Company, the settlers consisted chiefly of young men. They had no choice but to wed or cohabit with the Indian women; and the result has been, not only the growth of a Half-breed population greatly outnumbering the Whites: but the formation of a race of Half-breeds, divided into two classes or tribes, according to their Scottish or French paternity, who have hitherto kept themselves distinct in manners, habits, and allegiance, alike from the Whites and the Indians.

This rise of an independent Half-breed tribe is one of the most remarkable results of the great, though undesigned, ethnological experiment which has been in progress ever since the meeting of the

diverse races of the Old and New World on the continent of America; and now that the peculiar circumstances which favoured this result have come to an end, it is important to note the most striking phases presented by it, before they are modified or effaced by the influx of European emigration.

A few years since I printed and circulated as widely as possible, a set of queries relative to the Indian and Half-breed population both of Canada and the Hudson's Bay territory; and from the returns made to me by Hudson's Bay factors, missionaries, and others, most of the following results are derived. The number of the settled population, either Half-breed or more or less of Indian blood, in Red River and the surrounding settlements was stated to be about 7,200; but it will be seen from the definite facts of a more recent census, as well as from other official information, that this constituted only one class of the Half-breed population of the North-west. The intermarriage there has been chiefly with Indian women of the plain Crees; though alliances also occur with the Swampies (another branch of the Crees), and with Sioux, Chippewa, and Blackfeet women. But the most noticeable differences are traceable to the White paternity. The French Half-breeds have more demonstrativeness and vivacity; but they are reported to take less readily to the steady drudgery of the farm than those of Scotch descent. But at best, the temptations of a border settlement, with its buffalo hunts and its chief market for peltries, must greatly interfere with the development of industrious habits common in old settled agricultural communities.

A few of the special facts ascertained as the result of my researches may be noted here. The Half-breeds are a large and robust race, with greater powers of endurance than the native Indian. Mr. S. J. Dawson, of the Red River Exploring Expedition, speaks of the French Half-breeds as a gigantic race as compared with the French Canadians of Lower Canada. Professor Hind refers in equally strong language to their great physical powers and vigorous muscular development; and the venerable Archdeacon Hunter, of Red River, replies in answer to my inquiry: "In what respects do the Half-breed Indians differ from the pure Indians as to habits of life, courage, strength, increase of numbers, etc.?"—"They are superior in every respect, both mentally and physically." Much concurrent evidence points to the fact that the families descended from mixed parentage

are larger than those of the Whites; and though the results are in some degree counteracted by a tendency to consumption, yet it does not amount to such a source of diminution on the whole as to interfere with their steady numerical increase. One of the questions circulated by me was in this form: "State any facts tending to prove or disprove that the offspring descended from mixed White and Indian blood fails in a few generations." To this the Rev. J. Gilmour, one of the New England Company's Agents, answered: "I know many large and healthy families of partial Indian blood, and have formed the opinion that they are likely to perpetuate a hardy race." The venerable Archdeacon Hunter, familiar with the facts by long residence as a clergyman of the Roman Catholic Church among the mixed population of the Red River Settlement, stated still more decidedly: "The offspring descended from mixed White and Indian blood does not fail, but, generally speaking, by intermarriages it becomes very difficult to determine whether they are pure Whites or Half-breeds." Living, however, for many years among a people in whom the Indian traits are more or less traceable, it is probable that the Archdeacon's attention is less attracted by the modified, ample black hair, the large, full mouth, and the dark, though gentle and softly-expressive eye, which strike a stranger on first coming among any frontier population of mixed blood. The Half-breeds also retain much of the reserved and unimpressible manner of the Indian; though a good deal of intercourse with the native race has led me to the conclusion that this is more of an acquired habit than a strictly hereditary trait:—a piece of Indian education akin to certain habits of social life universally inculcated among ourselves. When off his guard, the wild Indian betrays great inquisitiveness; and when relaxing over the camp-fire after a laborious day, gives free play to mirth and loquacity.

The perfect equality of the numerous Half-breed population of Manitoba with its White settlers is in all respects clearly recognized. In an official letter from Lieutenant-Governor Morris, dated October, 1875, he informs the Minister of the Interior that, in a recent conference with the Salteaux Indians for the relinquishing of a tract of land embracing 55,000 square miles, they informed him that there were some twenty families of Half-breeds who were recognized as Indians, and lived with their tribe, and they accordingly wished to have them included in the treaty. In reply to this, the Lieutenant-

Governor states: "I said the treaty was not for Whites, but I would recommend that those families should be permitted the option of taking either status as Indians or Whites, but that they could not take both."

But the Lieutenant-Governor reports a distinct treaty entered into with "Augustus Brabant, Baptiste Davis, and others, Half-breeds of the Lakes Qu'Appelle and environs," in which, addressing them as "gentlemen," he said: "I can assure you that I am confident the Government will respect the rights of the Half-breeds to the lands which they have cleared and cultivated;" while, at the same time, he undertakes to consider their request for the enactment of laws and provisions for the regulation of buffalo-hunting, as a subject of great importance alike to the Half-breeds and to other members of the community.

According to a special census taken in 1871, the total Half-breed population of Manitoba was stated to number 9,770. But this very partially represents the actual extent of hybridity. Mr. J. A. N. Provencher, Indian Commissioner, in his report to the Minister of the Interior, dated at Winnipeg, 31st Dec., 1873, says: "Many hundreds of Half-breeds were put on the list of Indians since the payment of 1871, and their number has increased each year. These Half-breeds live with the Indians; have the same habits, and actually form part of the tribe." But the Act by which the Government of Manitoba is established and constituted, grants an extent of 1,400,000 acres to the children of Half-breeds. The measure is designed for their protection; and year by year new claimants may be looked for among the more civilized Half-breed hunters of this singular people, who have thus a motive to abandon their connection with the native tribes, and to share in the privileges and industry of the settlement. The inducements will increase yearly, as the growing population diminishes the resources of the hunter, and compels the nomadic tribes to conform to the habits of an industrious community, or to wander off in search of new hunting grounds. All this is calculated to effect important changes on the condition of the population of mixed blood of what was, till recently, the territory of the Hudson's Bay Company.

The Half-breed population has till now existed there under three distinct conditions. There are the Half-breed children of Indian mothers, living with their tribes, and in no degree distinguishable in

habits or social position from the pure-blood Indian. Their influence mainly tends to modify the ethnical character of the tribe by intermarriage; and this has materially affected the characteristics of many tribes still nomadic, and otherwise unchanged by intercourse with the Whites. In striking contrast to those are the Métis or Half-breeds, who have hitherto formed the major portion of the mixed population of the Red River Settlement, living on perfect equality with the White settlers, and constituting an integral part of the colony. They are neither to be confounded with the Indians of mixed blood already described on older Canadian reserves; nor with the remarkable race of Half-breed buffalo hunters, who have long maintained an independent position, distinct alike from the emigrant settlers and from the nomad Indian tribes. It seemed, indeed, as if the problem of the permanent development of an intermediate race of mixed blood was to be here tested on a grand scale: when the transfer of the Hudson's Bay Territory to Canada, and the conversion of the old Red River settlement into a province of the Dominion, introduced wholly new elements incompatible with the permanency of Half-breed hunter tribes.

So long as the settlement remained under the control of the Fur-trading Company, everything tended to favour the growth of a Half-breed population, under each of the conditions above named. It was remote from all the great centres of colonization; shut out from any of the ordinary incentives to agricultural industry or settled trade; and inaccessible except through the agency of the Hudson's Bay Company. Even the rival fur-trader was excluded; and hence the whole policy of the settlement tended to encourage the introduction of the young adventurer, trapper, or *voyageur*, rather than the married settler. The habits of life incident to the fur trade made the distinction greatly less marked between the Indian and the White man; and thus a people, as intermediate in habits and mode of life as in blood, from those of the old settled provinces of Upper and Lower Canada, grew up unchecked. Much property has passed into the hands of those of mixed blood. Their young men have, in some cases, been sent to the colleges of Canada, and, after creditably distinguishing themselves, have returned to lend their aid in the progress of the settlement. A curious trait of Indian blood was illustrated in a young Half-breed who distinguished himself as a student in University College, Toronto; and, after taking his degree

at the University, returned to the Red River settlement and started a newspaper, in which the interests of the colony were advocated, as distinct from those of the great fur company which then exercised supreme control. Compelled to leave the settlement for a time, he returned to Toronto, and accepted an engagement on the staff of one of the daily papers. On my enquiring in how far his services proved to be satisfactory, I was interested to learn that the patient, passive endurance, inherited from his Indian ancestry, enabled him to surpass most of his competitors in the protracted night work which devolves on the members of the editorial staff of a daily paper.

Thus a favourable concurrence of circumstances has tended to give ample opportunities for testing the experiment of intermingling the blood of Europe and America, and raising up a civilized race peculiar to its soil. This hybrid race will remain as an important element in the population of the new Provinces of the North-west. The experience of older settlements proves that it has within itself no inherent elements of decay. It will long serve to give a peculiar character to the community; and even after it has been absorbed by the predominant emigrant race, it will assert some influence, and reveal its traces from time to time, as later generations revert to the ancestral Indian type.

But apart from the civilized Half-breed, admitted to an equality with the White settlers, and partaking of all the advantages which European culture and habits of industry could transfer to the wilderness, there remains the tribe of Half-breed hunters, mingling not only the blood but the habits and mental characteristics of the two races from whom they trace their origin. These Half-breed buffalo-hunters—the offspring born to native women as the inevitable results of such a social condition as long pertained to the occupants of the forts and trading-posts of that remote region—are wholly distinct from the civilized settlers, and yet more nearly related to them than to the wild Indian tribes. They belonged to the old settlement, possess land, and cultivate farms; though their agricultural labours are very much subordinated to the claims of the chase, and they have hitherto scarcely aimed at more than supplying their own wants. They are divided into two bands, and number in all between six and seven thousand. The two divisions have their separate tribal organizations and distinct hunting grounds. In 1849, the White-Horse-plain Half-breeds, on the Strayenne River, Dacotah

Territory, rendered the following returns to an officer appointed to take the census: "Seven hundred Half-breeds, two hundred Indians, six hundred and three carts, six hundred horses, two hundred oxen, four hundred dogs, and one cat." This may illustrate the general character of a people partaking of the nomade habits of the Indian, and yet possessed of much movable property and real estate. They are a hardy race, capable of enduring the greatest privations. They have adopted the Roman Catholic faith, and specially covet the presence of a priest with them when on their hunting expeditions. Mass is then celebrated on the open prairie, and is regarded as a guarantee of success in the hunting-field. On such expeditions, it has to be borne in view, they are not tempted either by mere love of the chase or by the prospect of a supply of game. Winter-hunting furnishes to the trapper the valued peltries of the fur-bearing animals. But on the summer and autumn buffalo hunts depend the supply of the pemmican, which long formed one of the main resources of the whole Hudson's Bay population. The summer hunt keeps them abroad on the prairie from about the 15th of June to the end of August, and smaller bands resume the hunt in the autumn. With this as the favourite and engrossing work of the tribe, it is inevitable that farming can be carried on only in the most desultory fashion. Nevertheless, the severity of the winter compels them to make provision for the numerous horses and oxen on which the summer hunt depends. Thus habits of industry and forthought are engendered; and as the inevitable tendency of the new condition of things must be to bring buffalo-hunting to an end, the tribes of Half-breed hunters will be gradually compelled to take their place as members of the industrious farming and trading community.

The isolation of Manitoba, though not likely to be long perpetuated, is favourable to the transitional stage of this singular hybrid race. They are mostly of Cree descent, so far as they are of Indian blood; but they manifest no inclination to associate with the native tribes. The Sioux and Blackfeet they regard as their natural enemies, and carry on warfare with them much after the fashion of the Indian tribes that have acquired firearms and horses; but they give proof of their "Christian" civilization by taking no scalps. In the field, whether preparing for hunting or war, the superiority of the Half-breeds is strikingly apparent. They then display a discipline, courage and self-control, of which the wild Sioux, Crees, or Blackfeet

are wholly incapable; and they accordingly look with undisguised contempt on their Indian foes.

Such are some of the most noticeable characteristics of this interesting race, called into being by the contact of the European with the native tribes of the forest and prairie. With so many of the elements of civilization which it is found so hard to introduce among the most intelligent native tribes, an aptitude for social organization, and a thorough independence of all external superintendence or control: there seems no reason to doubt that here is an example of an intermediate race, combining characteristics derived from two extremely diverse types of man, with all apparent promise of perpetuity and increase, if they could have been secured in the exclusive occupation of the region in which they have originated. They know the use and value of money; are familiar with the idea of personal property in land, and with the use of the plough and other European implements of agriculture; and have learned to carry out agricultural operations on a scale sufficient to raise the requisite root and grain crops, and the stock so much in demand for their peculiar occupation in the great hunting-field of the buffalo-haunted prairie. With the gradual failure of the buffalo herds they would, under any circumstances, have been necessitated to devote more time and attention to their farms; and thus they had within themselves every guarantee for endurance. But, situated as they are, the Half-breeds of Manitoba can no more hope to perpetuate themselves as a distinct race than those of the older provinces. Already the change has begun which involves their disappearance. Within the settlement itself the White population have long intermarried freely with those of mixed blood, and their offspring share with perfect equality all the rights and privileges of the community. The barrier between the latter and the tribe of Half-breed buffalo-hunters is too slight to create any insurmountable impediment to their intermingling, even had the Red River Settlement been able to retain the characteristics of an isolated frontier province. But there, as elsewhere, the railway is destined to work a speedy revolution. With the increase of emigration the same results must follow as have already occurred in all the older settlements, from the New England shores or the St. Lawrence, westward to the remotest border clearings. The last traces of the Red Blood will disappear, yet not wholly by extinction. The minority, passing through this transitional Half-breed stage, will have been

absorbed into the new generations, but not without leaving some traces on the predominant race, and, perhaps, helping to adapt it to its new home.

It has been a favourite idea with some physiologists that in the undoubted development of something like an essentially distinct Anglo-American type of man, there is a certain approximation to the Indian type. Dr. Carpenter, in his "Essay on the Varieties of Mankind," lays claim to originality in the idea "that the conformation of the cranium seems to have undergone a certain amount of alteration, even in the Anglo-Saxon race of the United States, which assimilates it in some degree to that of the aboriginal inhabitants." This he dwells on in some detail, and arrives at what he seems to regard as an indisputable conclusion, that the peculiar American physiognomy to which he adverts presents a transition, however slight, toward that of the North-American Indian. I doubt if such an idea would ever have occurred to a physiologist of Canada, or of New England, to whom abundant opportunities for comparing the Indian and Anglo-American features, and of noting the actual transitional forms between the two, are accessible. But if such examples can be clearly recognized, they may be assigned with more probability to a reverting to some Indian ancestress whose blood is transmitted to a late descendant.

The European colonist is, in the strictest sense of the term, an intruder in the New World. He can scarcely plead a higher law of right, in the dispossession of the Aborigines, than that of the strongest. It is his "to take who has the power, and to keep who can." His higher plea is, the better account to which he can turn the wilderness of the New World. Yet the thoughtful mind is not wholly satisfied even by such a plea, in defence of the utter extirpation of the aboriginal population of a whole continent, in the interest of intruders from the Old World. It is, therefore, not merely an interesting, but a satisfactery reflection, that here also, as in modern nationalities of Europe, its ancient and prehistoric races will survive under new forms to share in the novel phases of the coming time.

To this, I conceive, we must look as the inevitable and by no means unsatisfactory solution of a question which has troubled the minds of many philanthropists. Among the native races with which European colonization has brought us into contact, in Africa, Australia, and elsewhere, there are many too low in the scale of humanity

to be welcomed as an ethnical element in the young nations that are supplanting them. But a merely savage stage is not necessarily an evidence of incapacity or innate inferiority. The Maori of New Zealand, with his traditional legends and poetry, is not without resemblance to the cruel but vigorous pagan Northman by whom the half-civilized Anglo-Saxons were wasted, and then reinvigorated.

It cannot but excite regret that any race with unmistakable aptitudes for civilization should utterly perish. But we have either to expatriate, exterminate, or absorb the races with which, in the progress of colonization, we are thus brought in contact; and the last-named process will be accelerated by proceedings most consonant to the interests of the race which we have now specially in view. The Indian, under the care of his official Superintendent, is guarded against the acquisition of an absolute personal right in his share of the common reserve of his tribe, from the just apprehension that he would speedily be ousted from it by some crafty land-speculator. Yet such a state of pupilage must come to an end sometime or other; and it is well that steps are already being taken which aim at such a result. Free-trade in their own land may be beneficially introduced among themselves, without at present allowing of its alienation from the tribe. The industrious provident Indian will thus acquire it, as against his idle, improvident, or dissolute fellow-Indian. Still more, the rising generation must be admitted as speedily as possible to pass beyond the Indian pale into the general community. This can be best done by apprenticing Indian boys to mechanical or other trades, for which they show an aptitude. The Rev. J. Maurault, Roman Catholic Missionary at St. Francis,—speaking of a tribe consisting entirely of Half-breeds,—says: "Many suppose that our Indians are intellectually weak and disqualified for business. This is a great mistake. Certainly, as far as the Abenakis are concerned, they are nearly all keen, subtle, and very intelligent. Let them obtain complete freedom, and this impression will soon disappear. Intercourse with the Whites will develop their talents for commerce. No doubt some of them would make an improper use of their liberty, but they would be but few in number. Everywhere, and in all countries, men are to be found, weak, purposeless, and unwilling to understand their own interests; but I can certify that the Abenakis generally are superior in intelligence to the Canadians. I have remarked that nearly all those who have left their native village to go and live elsewhere free,

have profited by the change. I know of several who have bought farms in our neighbourhood, and are now living in comfort. Others have emigrated to the States, where they have almost all prospered, and where several of them have raised themselves to honourable positions." Wherever the Indian has been left to his own resources, according to the report of this friendly but impartial observer, he is seen to thrive. "But here," he says—*i. e.*, on the Indian Reserve—"we see nothing of the kind. Nevertheless, I observe a large number of young men, clever, intelligent and gifted with remarkable talents." Of these Abenakis of St. Francis there is not a pure-blood Indian among them. They are already, physically as well as morally, in the transitional stage; and, to all appearance, abundantly prepared for the final process of emancipation, and for casting in their lot with the rest of the community.

By such a process the native race will unquestionably disappear as such; but it will not perish, like the wild races, extirpated by disease, dissipation, or deliberate massacre. It will be taken up, by absorption, into the common stock, just as the specific nationality of English, Scotch, German, or French, is merged in the Anglo-American or Canadian people. It is the same process by which the world's old historic and unhistoric races were, in earlier centuries, blended into elements out of which younger nations have sprung. The statistics of the most civilized and long-settled Indian tribes of Canada and the United States give no indication that the intermixture of red and white blood—though to a considerable extent carried out under unfavourable circumstances,—leads to degeneracy or sterility. Mr. Lewis H. Morgan—well known for his valuable researches into the tribal systems of relationship and consanguinity,—in replying to inquiries I had submitted to him relative to the extent of hybridity traceable in the United States, remarks, as the result of peculiarly favourable opportunities of observation, that the native races "have taken up enough white blood in past generations, through the traders and frontier men, since 1700, to lighten their colour from one-sixth to one-fourth." He thus entertains the belief that even remote tribes have undergone considerable modification by this means; and this entirely accords with what has been shown in relation to the Half-breeds of Manitoba and the North-West. Mr. Morgan has enjoyed peculiarly favourable opportunities of observing the frontier wild tribes in the Territories of the United States; and he confirms, by his own experience, the

number of Half-breeds to be seen around every Government fort in the Indian territory. The ethnical results impressed him everywhere favourably; and he closes his remarks with the hope that he may see the Indians of the United States acquiring property, education, and a permanent settlement, with honourable marriages; for, he says, "I think we can absorb a large portion of this Indian blood, with an increase of physical health and strength, and no intellectual detriment."

Such, then, is one element affecting the condition and future prospects of the native races of the New World, not without its analogies in the ethnology of Europe, which has not yet received the attention it deserves. The results of the meeting and intermingling of the native and intruding races, especially in the inartificial habits of border life, are much more extensive and lasting than the ordinary observer has any conception of; and have led to the transfer of a larger amount of Red Blood to the common stock than has received any adequate recognition. If the triumphs of modern progress in the New World were attained by means such as those resorted to by its first Spanish colonists in their treatment of the native races, we could look with no satisfaction or well-grounded hope on states thus founded in iniquity. But if by this intrusion of the vigorous races of Europe, industrious millions, enjoying all the advantages of cultured refinement, are to replace scattered tribes of savages living in aimless strife: the most sensitive philanthropist must be satisfied if, in addition to this, he can recognize a process going on whereby even the displaced and superseded aborigines are not wholly excluded from a share in the advantages of such progressive civilization, or even from exercising some influence on its development.

THE BOTANY OF THE EASTERN COAST OF LAKE HURON.

BY JOHN GIBSON, B. A., AND JOHN MACOUN, M. A.,
Professors in Albert College and University, Belleville.

During the months July and August of the past summer, the writers, in company with James Burns, Esq., of Bayfield, made a somewhat satisfactory, though necessarily incomplete exploration of the Botany and Geology of that portion of the eastern coast of Lake Huron lying between the parallels 43° 10′ and 44° 50′ N. lat. The eastern and western extension of this area embraces only that portion of Western Ontario which is bounded on the west by Lake Huron, and on the east by an imaginary line drawn from the southern bend of the Rivière aux Sables (south), in a direction N. by N. E., to the mouth of the Sydenham River at Owen Sound on the Georgian Bay. The superficial area, therefore, is by no means extensive, but owing to its northern and southern bearing, and its favoured conditions of climate, cannot fail in a botanical point of view to be productive of many interesting facts in the geographical botany of Canada. In treating of the botany of a district so limited in extent as the one under review, it must be borne in mind that, making due allowance for the varying altitude of the country, we cannot with any degree of precision come to any generalizations regarding the effect of so limited an increase of latitude upon the vegetation of that particular meridian. We can point, however, to the existence, within this area, of forms whose presence can only be accounted for through a peculiarity of causes, geological and climatic; and on this account it is deemed expedient to preface our botanical notes with a sketch of the more salient points in the physical geology and climatology of the district.

From Cape Ippewash on the south to the Georgian Bay on the north, the general character of the region is level or gently undulating, presenting no conspicuous highlands with the exception of the bold precipitous escarpments found skirting the southern and south-western coasts of the Georgian Bay. Along the coast of Lake Huron

from Port Frank to Clark Point the coast is bold but not precipitous, has an average height of 100 feet above the Lake, and is composed of the brown calcareous clays of the Saugeen division, sometimes visibly underlaid by members of the Coniferous and Tentaculite Formations. Westward from the Lake the country keeps perceptibly rising, and culminates in a ridge, running between the Townships of Tuckersmith and Hibbert in County Huron, which rises to the summit-level of 1,050 feet above the sea. The average altitude above Lake Huron is about 222 feet, and above the sea approximately, 900. The superficial deposits of the drift period form the surface of this triangular area, and so vast and universal are these accumulations that access to the foundation rocks can only be made along some of the river channels, and at intervals along the margin of the Lake. These deposits have as yet been but imperfectly studied, but the principal facts of their history, so far as is necessary in the present connection, will be given as briefly as possible. They may be sub-divided in ascending order, into:

1. Erie blue clay.
2. Saugeen brown clay.
3. Local deposits of reddish clay, gravel and sand.

The lowest of these stratified sediments is the *Erie clay*. It is more or less calcareous, containing in many instances 30 per cent. of calcium carbonate, and holds numerous pebbles and boulders alike of Palæozoic, Huronian and Laurentian origin. The second division, or that of the Saugeen clay is, along with beds of modified drift, the superficial deposit of the district, and thus demands some consideration in a botanical point of view. It is an aggregate of very fine layers of brown calcareous clay, containing but few embedded boulders or pebbles. Its average thickness seems to be about 100 feet, although in a few instances in north Huron, and along the banks of the Saugeen River, between Hanover and Walkerton, it is found as a very thin bed, overlying a deposit of fine brown sand, into which at different points the clay is pressed in the form of mammillary masses of various sizes. A great portion, however, of this upper deposit of clay is overlaid by beds of coarse gravel and sand, observed capping the ridges of hills which run in a general east and west direction to the vicinity of the Lake. Crossing these ranges of hills almost at right angles, and extending along the western limit of the district, lies a remarkable ridge composed of water-worn gravel and fine sand, whose

general contour is parallel to the present margin of the Lake. Conforming to the irregularities of the coast for about sixty miles, and at an average distance from it of a mile and a half, it reaches on the south the sandy flats of the Rivière aux Sables (south), and is finally lost. The western slope of this lacustrine terrace inclines gradually towards the present Lake beach, and within this limited area deposits of shell-marl are frequently found. Future researches will, no doubt, prove the existence of other terraces lying more to the eastward, which will, doubtless, throw much light on the former physical features of this Lake-area. Hydrographically, the region under consideration may be divided into two, more or less, distinct areas, the one comprising the valleys of the Rivière aux Sables (north and south), the Bayfield, Maitland, and Saugeen Rivers which flow into Lake Huron; the other comprising the bight of Owen Sound, fed by the Rivers Potawatamie, Sydenham, and Indian, and the Bays Colpoy and Hope. These streams, as a rule, are small, and undergo rapid oscillations of level, increasing in the spring to torrents of considerable volume, and conspicuously diminishing towards the fall, when, in many cases, numerous small deltas are formed in the lowlands, composed for the most part of their alluvial accumulations.

The hydrographic areas thus indicated are naturally separated by the somewhat tortuous escarpment of the Niagara limestone, which, entering this district from the south, sweeps around towards the heights above Cape Commodore, and thence trending northward past Cape Paulet, finally terminates at Cabot's Head, the extreme northern point of the Bruce Peninsula. Throughout its course it conforms with more or less irregularity to the shape of the coast line, but presenting a less salient curve, and in every case exposing its precipitous face to the north and north-east, in cliffs ranging from 50 to 300 feet above the level of Lake Huron. The Clinton limestones, however, are found to visibly underlie the Niagara in the more southern bluffs, occupying in many instances a vertical face from 70 to 100 feet in height. North of Cape Paulet these limestones disappear, and the cliffs along the coast to Cape Chin are altogether occupied by the Niagara escarpment, and vary in height from 120 to 160 feet.

Important as is this escarpment from a geological stand-point, it is found to be no less effectual as a meteorological agent, in its relation to the vegetation of this portion of Ontario. The immediate coast along the southern and south-western portions of the Georgian Bay

is naturally exposed much more effectually to the boreal winds from the Muskoka territory than is the district lying along the eastern shore of Lake Huron. These cold winds act as refrigerators on the vaporous atmosphere of the Georgian Bay, and are therefore productive of a supply of snow much more abundant than that found along the immediate coast of Lake Huron. The soil, therefore, undisturbed by the varying temperature which affects other districts further south, seldom freezes to any great extent, and consequently must exert a marked influence upon the vegetation of early spring. Such indeed is found to be the case. The snow remains till late, and when it finally disappears, vegetation bursts out with astonishing rapidity and vigour. Doubtless similar physical causes render the vegetation of the Muskoka district equally precocious and exuberant; so that here on the 45th parallel of latitude, and before the end of May, may be seen peas, beans and potatoes several inches above the ground. To some what different climatological influences, however, is that region exposed which borders on the coast of Lake Huron. Here likewise, the prevailing winds are from the north and north-west, but these are materially modified in temperature in their passage over such a body of water. Lake Huron, with its area of 23,780 square miles, cannot but dispense a degree of moisture to its shores not to be found in more inland localities, and must consequently exercise an equalizing effect upon the summer and winter temperatures of the atmosphere near the coast-line. Here, however, we find no protecting rock-escarpments so congenial to the more northern vegetation of the Georgian Bay, but a continuous cliff-line of brown clay raised on an average 100 feet above the lake. While, therefore, in the former area are found on the one hand introduced forms which survive the inclemency of winter under its heavy carpeting of snow, and on the other, herbaceous vegetation delighting in boreal winds and the moist cool crevices of rocks;—in the latter grow arborescent types, the vitality of whose fruit-bud could only be preserved by an equable and moist atmosphere, and the majority of which are decidedly southern in range. As corroborative of this conclusion may be cited the fact that in the neighbourhood of our great lakes the isothermal lines tread southward, the curve being considerably more acute on the eastern than on the western shores. In this connection it may be observed that the following introduced trees and shrubs grow and flourish most luxuriantly at Royston Park, Owen Sound:—

Forsythia viridissima.
Cydonia japonica.
Pyrus ancuparia.
Deutzia scabra.
Deutzia gracilis var. crenata.
Chionanthus virginica.
Rhus cotinus.
Liburnum odoratissimum.

It is somewhat remarkable that the majority of all the shrubs in cultivation, either in Toronto or St. Catharines, can here be brought to perfection without any artificial protection whatever, but that on the exposed coast-line of Lake Huron such forms cannot be openly cultivated, the snow supply not being sufficient, nor its continuance constant enough, to afford the necessary protection.

Before leaving this portion of our subject it may not be uninteresting to indicate certain preferences among the plants of this area for the Niagara and Clinton limestones, a fact which at once suggests an explanation of the many anomalies in the botanical geography of the district. The Ferns, *Scolopendrium officinarum*, *Pelaea atropurpurea*, *Aspidium felix-mas*, and *A. lonchitis*, may more especially be cited as peculiar, so far as investigation goes, to the Niagara and Clinton Formations of Canada. Of these, *Scolopendrium officinarum* has been reported from only two localities in North America, the one at Onondaga in New York State, the other in the vicinity of Owen Sound, Ontario. *Pelaea atropurpurea* has been detected at different stations along the Niagara escarpment, from the Falls to Owen Sound and Colpoy's Bay; and *Aspidium lonchitis* seems to be confided to the Niagara escarpment of the Bruce Peninsula. Among the mosses, however, we discover a more marked predilection for the Niagara and Clinton rocks of Canada. The following brief catalogue in all probability includes the principal forms under this relationship :—

Anodus Dorianus.
Seligera recurvata.
S. pusilla.
Gymnostomum curvirostrum.
G. rupestre.
Hypnum Sulivantii.
H. brevirostre.
H. Somerfeltii.
H. chrysophyllum, var. rupestre.
H. compactum.
H. deplanatum.
Bryum albicans.
Bartramia calcarea.
Didymodon luridus.
D. cylindricus.
Desmotodon.
Trichostomum tophaceum.
Fissidens grandifrons.
Dicranum Schreberi.
Eucalypta streptocarpa.
Cotoscopium nigratium.
Trichostomum rigidulum.
Mnium serratum.
Barbara fallax.
Leskia nervosa.

Of the above, *Anodus Dorianus*, *Seligera pusilla*, *Hypnum compactum*, and *Cotoscopium nigratium*, may more particularly be cited as decidedly peculiar to this geological formation; *A. Dorianus*, from the Indian River, Owen Sound, not having hitherto been met with in any other portion of North America.

Gymnostomum curvirostrum and *Fissidens grandifrons* appear in great abundance alike at Owen Sound and the cliffs of the Niagara River, but are not reported from any other Canadian locality. Of the Liverworts apparently confined to this district and Formation, may be mentioned more especially the *Jungermannia cordifolia*, the *Riccia sorora*, and the *Medotheca porella*. Other examples, moreover, of the influence exerted on distribution by the chemical nature of the habitat, could in this connection be cited, exemplifying even more characteristically a similar peculiarity of range. One such example, however, is deemed sufficient.

Upon Laurentian soils and strata occur a number of species not elsewhere detected in Canada, so far as our present knowledge of their distribution extends. The more characteristic of these are given in the following list:

Polygonum cilinode.	Aira flexuosa.
Kalmia augustifolia.	Tricetum subspicatum.
Lobelia Dortmanni.	Aspleneum ebeneum.
Limnanthemum lacunosum.	Woodsia Ilvensis.
Pinus rigida.	Aspidium fragrans.
Potamogetia Claytonii.	Grimmia leucophasa.
P. Vaseyi.	Racomitrium microcaspum.
P. amplifolius.	R. Sudeticum.
P. Robbinsii.	R. Canesceus.
P. rufescens.	Hedwigia ciliata.
Carex Houghtonii.	Dicranum Spurcum.
C. lenticularis.	Rhabdoweissia frigax.
C. longirostris.	Trichostomum glancesens.
Lycopodium inundatum.	Fontinalis anti puretica, var. gigantea.

Hypnum rugosum.
Jungermannia barbata.

From the Rivière aux Sables on the south to the Niagara escarpment on the north, no rock exposures are met with of sufficient importance to exercise any appreciable effect upon the vegetation of the region. Along the valleys of the Saugeen, Maitland, and Bayfield Rivers, and upon the intervening gravel ridges, we find, with a few exceptions, the usual woodland types of more or less general

distribution throughout the Province. Further south, however, along the valley of the Rivière aux Sables, exist what are called the *sandy plains* of Bosanquet, composed of a white shifting sand, which, towards the coast, has been thrown up by the action of the wind into parallel dunes, rising in some instances to the height of 140 feet above the level of the plain, and resembling ordinary ridges of hill, formed by the usual process of denudation. Southward from the Aux Sables the steep clay terraces, which to the northward are observed overlooking the lake, keep gradually receding from the coast-line, until within the vicinity of Sarnia, on the St. Clair, where the clay again makes its appearance, and continues thence southward to Lake Erie. The area between this ancient lake-margin and the present beach is everywhere covered by drifting sands, similar to those of the Bosanquet plains of the Aux Sables. A sand-area of a somewhat analogous nature is traceable northward from Clark Point to the mouth of the Saugeen River, a distance of about 35 miles, and is found to occupy another portion of the former eastward extension of the waters of Lake Huron.

No portion of this district, however desert in repute and in fact, is destitute of a certain amount of vegetation. The ceaseless motion of the sand precludes the possibility of a grassy, green sward, and favours only a scattered growth of perennials, springing from thick and usually deep-seated roots or root-stocks, which, under the partial protection afforded by the scrubby growth of the oak and pine, are able to maintain a sturdy growth till comparatively late in the season. The more generally predominant species are here enumerated :—

Helianthus divaricatus.	Quercus ilicifolia.
H. strumosus.	Pinus resinosa.
Helianthemum Canadense.	P. Strobus.
Liatris cylindicæa.	Juniperus Sabina, vas. procumbeus.
L. scariosa.	Prunus pumila.
Aster multiflorus.	Lithospermum hirtum.
A. undulatus.	Asclepias tuberosa.
A. azureus.	Euphorbia corollata.
A. cordifolius.	Lathyrus maritimus.
A. ptarmicoides.	Solidago bicolor.
Quercus alba.	S. memoralis
Q. rubra.	S. arguta.

This vegetation, characterized as it is by a monotonous sameness of aspect, may be considered as affording a fair, though by no means

a complete, representation of the Flora of the sand-area of the eastern coast of Lake Huron.

As the whole area explored, owing to geographical position and physical features generally, favours alike a northern, southern, and provincial climate, so we find the vegetation more or less naturally divided into three sections, which it is deemed proper to consider separately :—

1. Boreal Type.—Species found in greater abundance on Lake Superior and northward, and most of which have migrated southward.
2. Provincial Type.—Species more or less generally distributed throughout the Province.
3. Austral Type.—Species more characteristic of more southern latitudes, and which have probably migrated from the south.

Boreal Type.—The species partaking of an undoubted boreal nature are for the most part confined to the Bruce Peninsula, the southern portion of the Georgian Bay, and the so-called Fishing Islands lying a few miles off the Bruce coast of Lake Huron. The southern limit may be set at the mouth of the Rivière aux Sables (north), south of which, as has been remarked above, the vegetation approaches that of the sandy plains of the Aux Sables further south. Strictly speaking, however, plants of a marked northern range are of frequent occurrence throughout the Province, distributed more especially through our swamps of tamarack and cedar. It is well known that districts whose drainage is impeded by physical or other causes become natural sources and habitats of plants demanding a temperature much below that required by our woodland species, or those on the southern slopes of our sand and gravel ridges. Botanically considered, these swamps or peat bogs dimly represent outliers or isolated portions of the great Arctic or Scandinavian Flora, and thus with historic interest bear testimony, as conclusive as do the Alpino-Arctic types of the White Mountains and the Pyrenees, to the former almost universal extension of the Artic Flora over the temperate zone, and its comparative degree of continuity, as evinced by the occurrence of representative species in regions physically adapted for boreal forms. These depressions of surface occupied by peat bogs, or lakes and ponds with which such localities are often studded, are of frequent recurrence throughout the area indicated by the title of this paper. From the plains of the Aux Sables (south) to the latitude of Goderich, the Cedar (Thuya occidentalis) is eminently charac-

teristic; whilst north of this line the Tamarack (Larix Americana) holds almost universal sway. In all cases we meet with a profusion of ericaceous shrubs, belts and clumps of evergreens, and a mossy carpeting, knee-deep with the sphagnous species *S. cymbifolium* and *S. acutifolium.* Here also are found in frequent abundance the following mosses, all apparently of high western and northern range:

Hypnum cordifolium.	Dicranum Schraderi.
H. giganteum.	D. undulatum.
H. uncinatum.	D. Drummondii.
H. nitens.	Mnium affine.
H. Blanduvii.	Bryum binum.
H. tamaricinum.	Fissidens adiantoides.

Intimately associated with the latter, but less abundantly distributed, occur the sedges, *Carex teretiuscula, C. stricta, C. irrigua, C. vaginata, C. riparia, C. utriculata, C. filiformis, C. flava, C. gynocrates, C. tenella, C. canescens, C. trisperma, C. flexilis,* and *C. intumescens.* The usual monotonous appearance of this meadow herbage is to some extent modified by the growth of the grasses *Muhlenbergia glomerata, Phragmites communis, Calamogrostis Canadensis, Phalaris arundinacea, Glyceria elongata,* and *G. Nervata;* whilst the minor flora is marked by the luxuriant orchidaceous growth of *Platanthera dilatata, P. hyperborea, P. obtusata, P. orbiculata, Cypripedium pubescens, C. spectabile, C. arietinum, C. acaule, Calypso borealis,* and *Calopogon pulchellus.* The district comprised between Cabot's Head, the most northern projection of the County of Bruce, and a line drawn from Owen Sound to Chief's Point on Lake Huron, will be found to include the majority of the more truly boreal forms of the eastern shore of Lake Huron. This area is, botanically considered, almost distinct enough to admit of a separate consideration, but owing to the present immature stage of our knowledge regarding its more inland vegetation, such a limitation in the present instance would be altogether unadvisable. The following list may be considered as containing the more characteristic boreal forms found within our area:

Thalictrum dioicum.	Lobelia Kalmii.
Coptis trifolia.	Campanula rotundifolia.
Drosera rotundifolia.	Vaccinium oxycoccus.
D. longifolia.	Kalmia glauca.
D. linearis.	Ledum palustre.
Parnassia palustris.	Pyrola rotundifolia.

Stellaria borealis.
Polygala paucifolia.
Lathyrus ochroleucus.
Potentilla anserina.
P. Norvegica.
Epilobium palustre.
Hippuris vulgaris.
Ribes rubrum.
R. lacustre.
Cornus stolonifera.
Linnæa borealis.
Lonicera cærulea.
Galium boreale.
Solidago Houghtonii.
Aster borealis.
Tanacetum Huronense.
Artemisia Canadensis.
Cirsium undulatum.
Hieracium Canadense.
Nabalus racemosus.
Alopecurus aristulatus.
Calamogrostis stricta.
C. Canadensis.
Cinna arundinacea.
Graphephorum milicoides.
Glyceria aquatica.
Pyrola secunda.
Moneses uniflora.
Primula Mistassinica.
Physalis grandiflora.
Helenia deflexa.
Rumex salicifolia.
Platanthera orbiculata.
P. obtusata.
P. hyperborea.
P. dilatata.
Allium Schœnoprasum.
Tofieldia glutinosa.
Scirpus sylvaticus.
S. cæspitosus.
Carex flexilis.
C. lenticularis.
C. gynocrates.
C. scirpoidea.
C. Buxbaumia.
C. Monosperma.
Thiticum repens.
Aspidium lonchites.
Asplenium viride.
Cetraria Icelandica.
Cotoscopium nigratium.
Selaginella selaginoides.

Many of the above-named species are confined to the Bruce Peninsula, and are apparently southern waifs from the more northern subarctic vegetation of the Lake Superior region, encouraged hither by a damp climate, a low temperature, and a great radiation of heat and moisture. These interesting wanderers suggest many reflections, of which the most attractive is that relating to the common origin, subsequent dispersion, and final segregation in the temperate regions of the northern and southern hemispheres, of many of the forms above enumerated. Of their birth-places as species, nothing is yet definitely known; whilst to account for their dispersion and segregation, only one theory has been advanced that is at the same time tenable and probable. We allude to Mr. Darwin's famous hypothesis which assumes that these and other boreal types were driven from our temperate latitudes into the Torrid Zone during the cold of the Glacial Epoch, and, on the return of warmth, retreated in opposite directions back towards the Poles, ascending to the Alpine summits of the mountains that crossed their line of march. This is not the

place wherein to discuss this plausible theory, though in passing it may be remarked that it demands a persistence of specific type through enormous periods of time, and over enormous areas, and under incalculable changes of conditions, that at first sight tells with considerable force against Darwin's own theory of the origin of species by natural selection.

PROVINCIAL TYPE.—Throughout the wooded district of the east coast occur a number of species of very wide distribution over the whole Dominion. These are found diffused through the Provinces from Newfoundland to Lake Superior, and are eminently Canadian in type.

AUSTRAL TYPE.—As we proceed southward from the Bruce Peninsula towards the Rivière aux Sables (south), we come upon a vegetation approaching more and more to that of the coast of Lake Erie, or that of the western portion of the State of New York. The forests south of the Maitland, and more particularly those of the Bayfield and Aux Sables Rivers, are characterized by an abundance of Oak, *(Quercus rubra, Q. macrocarpa, Q. coccinea, Q. alba)*, and Red Pine *(Pinus resinosa)*; and outlying patches of the White Pine *(Pinus strobus)*, are of frequent occurrence over the southern part of Huron County, and the Township of Bosanquet, in the County of Lambton. The Tulip Tree, or so-called White wood *(Liriodendron tulipifera)*, decidedly a south-western type, and heretofore reported only from that portion of Ontario circumscribed by London, Hamilton, St. Catharines, and Sandwich, is found in great abundance along the Lake, and inland from the Township of Sarnia northward to the valley of the Bayfield River—the latter locality being its most northern home in North America. Among the sands of the Rivière aux Sables, and growing abundantly with the Red Pine and Staghorn Sumach *(Rhustyphina)*, was found the southern *Quercus ilicifolia*, the Black Scrub Oak, a straggling shrub from three to eight feet in height, with petiolate leaves, whitish-downy beneath, a subturbinate cup and ovoid acorn. In the *intervale* lands of the above-named rivers grows in great abundance the Buttonwood *(Platanus occidentalis*, a tree which further south, along the mud-flats of the Thames, attains gigantic proportions. Here too are found in greater or less abundance the Black Walnut *(Juglans nigra)*, the Flowering Dogwood *(Cornus florida)*, the thick, shell-bark Hickory *(Carya sulcata)*, the American Crab Apple *(Pyrus coronarius)*, the Sassafras

(S. officinale), and the *Euphorbia cerollata*, all plants of southern origin, and elsewhere in Ontario but locally distributed—the range in almost every instance being south of their present locations. The Golden Club *(Orontium Aquaticum)*, an aquatic perennial with a deep root-stock, and strongly-nerved floating leaves, was detected in a pond near the embouchure of the Bayfield River. This station is certainly wonderfully inland for a plant usually found delighting in ponds near the sea coast and in river marshes of the tide-water, being in its present habitat nearly 700 miles from the sea. Heretofore its more northern station has been a point about 400 miles up the valley of the Susquehanna, at Gilbertsville, in the County of Otzego, (Paine). On the wooded hillsides of the Aux Sables and Lake Burwell occurs the Chestnut *(Castanea vesca)*, with its aments as long as its leaves, and so numerous as to impart a yellowish hue to the whole tree when in blossom. Equally remarkable for its long pendulous aments of barren flowers hanging from the ends of its branches, though in other respects so dissimilar, is the shrubby Hazelnut *(Corylus Americana)*, which in the barren plains of Bosanquet is found in great abundance, associated with the Red Pine, the Staghorn Sumach, and the Black Scrub Oak. The following species comprise the more important additional representatives of this division :—

Thalictrum anemonoides.	Aster lævis, var. cyaneus.
Hypericum kalmianum.	Artemisia biennis.
Enonymus atropurpureus.	Lobelia spicata.
E. Americana.	Monarda didyma.
Vitis riparia.	Physalis viscosa.
Lupinus perennis.	Prosartes lanuginosa.
Erigenia bulbosa.	Juncus acuminatus.
Gerardia integrifolia.	Panicum virgatum.

(To be Continued.)

LEAVES THEY HAVE TOUCHED;

BEING A REVIEW OF SOME HISTORICAL AUTOGRAPHS.

BY HENRY SCADDING, D.D.

(*Continued from page 347.*)

II.—BRITISH AND EUROPEAN GENERALLY.—*Continued.*

Curiously, it was on the point of truthfulness that Wellington dwelt when he pronounced his eulogy on Peel in the House of Lords, just after the fatal accident. "Your Lordships must all feel," he said, "the high and honourable character of the late Sir Robert Peel. I was long connected with him in public life. We were both in the Councils of our Sovereign together, and I had long the honour to enjoy his private friendship. In all the course of my acquaintance with him I never knew a man in whose truth and justice I had greater confidence, or in whom I saw a more invariable desire to promote the public service. In the whole course of my communication with him I never knew an instance in which he did not show the strongest attachment to truth; and I never saw in the whole course of my life the smallest reason for suspecting that he stated anything which he did not firmly believe to be the fact." Of course, Peel's hand, too, as well as Wellington's, has rested on the little sheet whose contents I transcribed above.

I add next a note, copied from the original of Lord Brougham's, written when yet Mr. Brougham. It will explain itself: "Hill Street, Tuesday. Mr. Brougham presents his best compliments to Sir W. Congreve, and returns him many thanks for the very interesting tract which he has just received, and from which he expects to derive much instruction. He will lose no time in perusing it, as well as the other upon a different matter. He hopes Sir W. C.'s health is improving." This Sir W. Congreve was the inventor of the "Congreve rocket," and author of many scientific treatises, one of them, "A Short Account of a New Principle of a Rotative Steam

Engine," probably the tract presented to Brougham. Congreve lived from 1772 to 1828, Brougham from 1778 to 1868. It will seem curious to Canadians to see Brougham's name associated in any way with the first Governor of Upper Canada; but in his Autobiography Brougham tells us that in 1806 he was sent by the Government of the day to Lisbon, in company with Lieut.-General Simcoe and others, to support the Court of Lisbon against the machinations of Napoleon. Brougham gives us the following note: "Downing Street, August 12th, 1806. Sir, I am directed by Mr. Secretary Fox to inform you that His Majesty having been pleased to appoint the Earl of Rosslyn, the Earl of St. Vincent, and Lieut.-Gen. Simcoe, to proceed on a special mission to the Court of Lisbon, you have been selected to accompany them as Secretary to the said mission, etc.—BEN. TUCKER." Brougham then says, "Gen. Simcoe was taken ill on his passage out, and grew so much worse after his arrival in Lisbon that he was compelled to return to England, and shortly after died." And afterwards, "The three Commanders were as well selected as possible for this difficult and delicate service. The Admiral's name, renowned all over the world, was peculiarly an object of veneration in these countries which had witnessed his great exploits; of the Generals, Lord Rosslyn had served in the country, and was distinguished by his great knowledge and talent for business, and the third was Gen. Simcoe, son of the officer who had been sent to Lisbon at the time of the Great Earthquake, with the liberal grant of money given to relieve the distresses which it had occasioned."

I now offer relics of four modern historians,—Hallam, Grote, Macaulay and Buckle. Few remarks will be needed in respect to them. Hallam's happens to be a response to a lady's application for his autograph, couched in terms worthy of the ingenious politesse of an old French courtier. "69 Wimpole Street, Jan. 8th, 1834. Dear Lady Juliana,—Like a true collector, I perceive you disdain not to fly at small game. How many times a day I write my unimportant name without thinking about it! But honoured as I now am by your request, it is with pride that I subscribe myself, Your very faithful and obliged HENRY HALLAM."—Grote's has reference to some point of literary or historical research. "12 Savile Row, London, Dec. 26, 1857. Dear Sir: I am favoured this morning with your letter of the 24th, and I have to thank you for the Pamphlet which you have been good enough to send me. I will certainly read it at

an early opportunity, and if it should produce any change in my views respecting the subject which Lord Monteagle laid before me, I shall have much pleasure in communicating the circumstance to you. I perfectly recollect having written to Lord Monteagle in reference to your MS. I remain, dear Sir, yours truly, GEO. GROTE." Macaulay's is a mere fragment; but it contains a sentiment tersely expressed: "I have so seldom found that predictions either of great good or of great evil have been verified by events, that I have become philosophically indifferent. Kindest love to Selina. Ever yours, T. B. MACAULAY." My memorial of Buckle, author of *The History of Civilization*, is a copy of *Allwoerden's Life of Servetus*, with his bookplate, showing his shield of arms with the motto *Nil temere tenta, nil timide*, and his name, HENRY THOMAS BUCKLE. I have also his copy of *Malcolm's Anecdotes of the Manners and Customs of London during the Eighteenth Century*.

Seven English poets come before us now, in authentic manuscript relics.—I possess a volume which was once the property of Wordsworth, and having his autograph, W. WORDSWORTH, on its first titlepage. It consists of a number of pamphlets bound together; one of them is an original copy of the sermon preached by Dr. Sacheverell at Oxford in 1702; and which created such a commotion in England. Among the Ecclesiastical Sketches of Wordsworth there is one headed "Sacheverell." We can suppose it suggested by the identical pamphlet preserved in this volume. I also show a manuscript note of Wordsworth's, acknowledging a memorandum sent to him, pointing out an identity of idea between his—

> "And 'tis my creed that every flower
> Enjoys the air it breathes,"

and a passage in Ausonius:—"Dear Sir: I was not acquainted with the passage of Ausonius to which you allude, nor with any part of his writings at the time, nearly 50 years since, when composing the lines which you quote. I perfectly remember the very moment when the poem in which they occur fell from my lips, I do not say, my pen, for I had none with me. The passage in Ausonius does not put the case so strongly as mine, as the mere word *gaudere* is not perhaps more than a strong expression for 'thrive.' The interest you take in this little matter is gratifying to me as a proof of sympathy between us, and emboldens me to subscribe myself, sincerely, your much obliged WM. WORDSWORTH. Rydal Mount, Dec. 29, 1836."

I now produce a volume which is, in a two-fold way, a special memorial of the kind which we are reviewing. It is *The Parochial History of Bremhill, in the County of Wilts*, by W. L. Bowles, Prebendary of Sarum, and endowed Vicar of the said Parish. Within it the author has written with his own hand, "To Robert Southey, in testimony of the highest respect. W. L. B." And at the foot of the title-page Robert Southey has written in his usual minute and beautiful style: "ROBERT SOUTHEY, London, 26 May, 1828, from the Author." The work itself contains a capital account of the Celtic, Roman and Monastic remains in the Parish of Bremhill. Byron satirised Bowles in his English Bards and Scotch Reviewers. A dictum of Bowles had at a later period again offended Byron, viz., that "all images drawn from what is beautiful or sublime in the works of nature, are more beautiful and sublime than any images drawn from art, and that they are therefore more poetical. This idea Byron pretended to controvert. After sixty years of a more propitious period than that which immediately preceded their publication, the sonnets of Bowles "still preserve for their author a highly respectable position amongst our poets." So Hallam has said in an Address to the Royal Society of Literature. Of Southey's place in our literature we need not be told. The following brief sentence of criticism however, in relation to him, from an *Edinburgh Review* of 1839, is doubtless just: "The true character of Southey is not to be sought in his greater poems, nor in the set tasks of his laureate workmanship. These are elaborate studies—exercises of literary skill. The spirit of the poet is to be found in his minor pieces, the more vigorous and less-trained offspring of his genius. First and foremost amongst these are his ballads. In them he is really an original and creative writer.' But irrespective of Southey as the author, Southey as the man will be long a delightful study for English readers. His Life and Correspondence by Warter, like the parallel book on Sir Walter Scott by Lockhart, will afford to future generations wholesome and noble subjects of thought.

I have something that represents favourably and well the remaining one of the so-called Lake Poets—Samuel Taylor Coleridge. It is a brief note, undated, addressed apparently to an editor, probably the editor of the *Courier*, in which paper Coleridge wrote in 1814 and earlier. It relates to a lecture—one of the lectures possibly which Coleridge delivered at Bristol in 1814. He refers also to some benevolent movement in favour of "poor Cotton Factory children."—

"My dear Sir," he writes, "I almost fear this may be too late—but I have made it so short, that I hope you may be able to find a corner for it. I want sadly to have a little political chit-chat with you. I hope I shall see you on Thursday, for I feel confident that you will be more than usually pleased with the Lecture. Your obliged, S. T. COLERIDGE. P. S.—O, pray do what you *can* and *may*, in behalf of the poor Cotton Factory children. I have just written a little article, and am preparing a brief popular statement." As a pendant to the Coleridge relic, I note a small volume which I have, once the property of a friend of his—Basil Montagu, showing his autograph, BASIL MONTAGU, with the addition in another hand of "from whom to W. R." Coleridge was domiciled with Basil Montagu for some time in London, and possibly has handled the little book, which was rather in his way, being Ludovicus Vives' *Introductio ad Veram Sapientiam.*

In shewing a MS. memorial of Henry Taylor, author of *Philip Van Artevelde, a Dramatic Romance,* I do not wholly leave the circle of the poets last named. Taylor dedicated the first edition of Philip Van Artevelde to Southey, in the following sonnet, which gives us a happy picture of Southey and his life, wholly devoted to letters, at Greta Hall.

"This Book, though it should travel far and wide,
As ever unripe Author's quick conceit
Could feign his page dispersed, should nowhere meet
A friendlier censor than by Greta's side,
A warmer welcome than at Skiddaw's feet.
Unhappily, infrequent in the land
Is now the sage seclusion, the retreat
Sacred to letters; but let this command
Fitting acknowledgment—that time and tide
Saw never yet, embellished with more grace
Outward and inward, with more charms allied,
With honours more attended, man or place,
Than where, by Greta's silver current sweet,
Learning still keeps one calm, sequestered seat."

My autograph relic of the author of Philip Van Artevelde, who is still living, and is now Sir Henry Taylor, consists of the following words: "The Roost, Bournemouth, 23 July, 1873. Dear ——: When you say the men at Trinity, Oxford, were second-class, do you refer to social position or to the honours they aim at? Many thanks for your letter: very useful. Yours affectionately, HENRY TAYLOR." It

is Taylor that we quote when we say, "The world knows nothing of its greatest men."

The late Lord Lytton I here rank as a poet. He was, besides, as we all know, one of the greatest of modern writers of prose fiction. He prided himself on his poem entitled "King Arthur." "Whatever worth I have put into this work of mine," he says in relation to this poem, "comprising, in condensed form, so many of the influences which a life divided between literature and action, the study of books and the commerce of mankind, brings to bear upon the two elements of song—Imagination and Thought—that degree of worth must ultimately be found in it, and its merits and its faults be gauged by different standards of criticism from those which experience teaches me to anticipate now. I shall indeed be beyond the reach of pleasure and of pain in a judgment thus tardily pronounced. But he who appeals to Time must not be impatient of the test which he invites." In my copy of King Arthur, Lord Lytton has written with his own hand the first line of that poem, with his name and the date, thus:

"Our land's first legends, love and knightly deeds."—LYTTON. 1871.

The last of the seven poets represented by autographs in my collection is the present laureate—Alfred Tennyson. I transcribe the following words from a note in his handwriting: "It is very gratifying to me to receive your volume, not only for its own sake, but as a proof that I have not altogether spoken in vain. Yours faithfully, A. TENNYSON."—The allusion in the closing expression is to his address to the Queen at the close of a new edition (1874) of his Works—in which he averred that the enthusiasm of England on the occasion of the recovery of the Prince of Wales from a dangerous sickness was evidence of the attachment of the empire to the crown; and for further evidence of the same thing he appealed to

"The silent cry,
The prayer of many a race, and creed, and clime—
Thunderless lightnings striking under sea
From sunset and sunrise of all thy realm."

And especially he cited the feeling shown by British America on the same occasion—

"That True North, whereof," he says, "we lately heard
A strain to shame us. Keep you to yourselves:
So loyal is too costly! Friends, your love
Is but a burden: loose the bond and go!"

The reference being to a thoughtless editorial in the *Times* newspaper, which recommended Canada, as speedily as might be, to take up her freedom and depart—a sentiment to which Tennyson rejoins:

> "Is this the tone of Empire? This the faith
> That made us rulers? This indeed, her voice
> And meaning, whom the roar of Hougoumont
> Left mightiest of all peoples under heaven?
> What shock has fool'd her since, that she should speak
> So feebly? * * *
> The loyal to their crown
> Are loyal to their own far sons, who love
> Our Ocean Empire with her boundless homes."

In a letter to Mr. Wm. Kirby, of Niagara, Tennyson used the following language: "For myself, I hope I may live to see England and her Colonies absolutely one, with as complete a reciprocity of the free gifts of God as there is between one county and another in the Mother Country. I would not wish anything better for my sons—nor would they for themselves—than that they should devote their lives towards helping to effect this 'seamless union.'"

One poetess—Mrs. Hemans—is represented in my collection. I show her copy of the *Araucana* of Don Alonso de Ercillo, a celebrated Spanish poem named in Don Quixote. On a fly-leaf she has transcribed in Spanish with her own hand, the passage in which Cervantes says of this poem, that it is one of the best in heroic verse which the Castilians possessed, and that it might be compared with the most famous productions of Italy. Thus it reads:

"Señor compadre, que me place, respondiò el Barbero, y aqui vienen tres todos juntos: *La Araucana de Don Alonso de Ercillo*, la Austriada de Juan Rufo Jurado de Cordova, y el Monferrato de Christobal de Virtuès, Poeta Valenciano." "Todos esos tres libros, disco el Cura, son los mejores que en verso heroyco, en lengua Castellana estan escritos, y pueden competir con los mas famosos de Italia." "Guardense como las mas ricas prendas de Poesia quo tiene España." *Vide* D. Quixote, cap. vi, tom. i. On the back of the fly-leaf is the signature "Charles Hemans;" and a mem. made by the late Rev. Dr. John Leifchild in these terms: "Mrs. Hemans' copy: with her writing on fly-leaf, and autograph of her son, Charles Hemans, who gave me this book,—JOHN LEIFCHILD." Throughout the poem numerous pencillings are to be seen, evidently made while Mrs. Hemans was prosecuting her studies in Spanish. The many

translations in her works show that her linguistic acquirements were extensive.

Charles Hemans himself, as the author of *Historic and Monumental Rome, Ancient Christianity and Sacred Art in Italy*, and other works, has become a man of note in the world of letters.

Of Charles Dickens, England's modern literary Hogarth, so to speak, I have a manuscript fragment. In it he chances to speak of his own "Uncommercial Traveller"—a series of papers more pleasing than most of his productions, being less exaggerated, and approaching in quiet humour Geoffrey Crayon's sketches of certain grades of English character. "No. 20 Wellington Strand, London, Wednesday, second December, 1868. Dear Mr. ——. Is my Uncommercial revise ready? I shall be glad to speak with you for one moment, if you can come round. C. D." I have also his name on the cover of a note addressed to "W. Empson, Esquire," written at length, as we familiarly speak of him—CHARLES DICKENS. The customary conventional suffixes and affixes sound strange when attached to names that have become known world-wide. I remember, on walking through the General Post Office in London, I felt slightly surprised when I was shown letters bearing the superscription "Charles Dickens, Esq."

As a companion to the Dickens' autograph I show a very splendid one of an artist who has helped readers, now for a long period, to realize with distinctness the innumerable creations of Dickens and other modern writers. It is a curious and somewhat grotesque signature, with which doubtless we are already familiar, having seen it so often etched at the foot of copper-plate illustrations. With the seven words which precede it, I give it thus: "Benj. Lumley, Esq., with the regards of GEO. CRUIKSHANK."

As introductory to my Shakspeare signature—or what has been deemed such—I produce four autographs of eminent Shakspeare scholars. First: a fragment from a note of Mrs. Jameson: "My time being cut up into hours and half-hours, I write in much haste. Pray excuse me: and believe me, truly yours, ANNA JAMESON." I could add another, signed ANNA MURPHY—Mrs. Jameson's maiden name, a postscript to which tells her correspondent that 'she would have written more, had there not been an impertinent fellow looking over her shoulder.' Next, a sentence from a note of Mrs. Cowden Clarke, compiler of the Shakspeare Concordance: "I cannot refrain from sending a few lines of thanks, written on plan-paper which will

serve to show you the precise spot our delightful house and garden occupy in relation to the steep-streeted city of which you retain so lively a remembrance." (The allusion is to Genoa.) Then a note from J. O. Halliwell, whose folio Shakspeare in 16 volumes, fetches when it comes into the market more than 100 guineas. "Pray accept my best thanks for your exceedingly clever little volume; it was truly kind of you sending it to me, and I am your truly and obliged J. O. HALLIWELL." And finally four lines of verse subscribed by the hand of Gerald Massey, who more satisfactorily than any other has interpreted Shakspeare's sonnets, and made them, independently of their poetry, as absorbing in interest as a grand historic drama. (They are dated "Toronto, Dec. 5, 1873.")

"TRUST.—When bent almost to breaking, Lord, I know
Thy hand doth grasp the middle of the bow;
And when it cracks at last, the strength will be
Upgathered in Thy hand and safe with Thee."—GERALD MASSEY.

I now proceed to a volume in my collection which shall be, at all events, a Shakspeare memento, if it does not prove a Shakspeare relic. But first I must evoke the shade of an old bookseller and bibliographer, departed from the scene since 1869—Mr. Edwin Jeans. Mr. Jeans' sphere of business was first Exeter in Devonshire, and then Norwich. He made old English black-letter literature a specialty, and in this department he acquired by experience an extra degree of knowledge. The large booksellers of London and other considerable places, are accustomed, as we know, to issue periodically very full catalogues of the works that accumulate upon their shelves. Minute descriptions are given in these publications of rare and curious books—the salient and attractive points of each volume are cleverly set forth. Such productions often contain much entertaining and instructive reading. In the composition of an elaborate catalogue, booksellers require the services of such men as Mr. Jeans; and accordingly in the capacity of a bibliographical expert we find him employed in the later years of his life by the house of Willis and Sotheran in London. Previously he had assisted in this and other ways the Messrs. Deighton of Cambridge. In London I fell in with an old black-letter small quarto which had once belonged to Mr. Jeans, and which he had set some store by, having discovered in it, as he believed, an autograph of Shakspeare. I suppose the great Shakspearean authorities had finally disagreed in

opinion with Mr. Jeans on this point, and so the book was not secured for the British Museum, the Bodleian, the University Library at Cambridge, or some one or other of the remaining national collections. I possessed myself of the volume and brought it away with me. Whether the inscription which it contains were really penned by the hand of Shakspeare, as Jeans contended, or not, the book I thought would serve as a kind of vehicle to the other side of the water of the Shakspeare autograph traditions, and be a visible suggester, when far away from Stratford, of pleasant talk on that topic. Mr. Jeans may not, after all, have been wrong in his persuasion. He was just the man to divine shrewdly on such a point. The relic, then, which I have now to speak of is a copy, somewhat mutilated, of Gervaise Babington's *Comfortable Notes on the Book of Genesis.* The title-page is wanting, but the close of the Dedication is to be seen, bearing the date of Feb. 1st, 1596. The book was thus, we see, certainly in existence twenty years before the decease of Shakspeare. Now the evidence that led Mr. Jeans to the belief that the volume had once been the property of Shakspeare is the following: Lengthways, on the margin of the seventh page of the Table of Contents, is written in an old style, rather carelessly however, the name of a former owner, which looks like "William Shakspeare," but abbreviated. (From other signatures which are held to be genuine, it is known that the poet was accustomed to write his name short.) To this signature is added in the same old hand—"his booke, given him by Mr. Warner." It would seem as if the book had been bereft of its title-page at the time of the gift, and that the recipient had hurriedly written the memorandum on the margin of a page of the contents, as a means of reclaiming the volume should it be lent or mislaid. Mr. Warner, author of "Albion's England," and known to be a friend of Shakspeare's, died May 9th, 1609. In the wear and tear of thirteen years the book, which was well adapted to popular family reading, probably lost its title-page. Mr. Jeans has made a number of memoranda on blank pages in the book, and on separate slips placed between its leaves. He copies from the preface to Staunton's Shakspeare the following: "What is strange, too, of a writer so remarkable, and of compositions so admired, not a poem, a play, or fragment of either, in his manuscript, has come down to us. What is still more surprising, with the exception of five or six signatures, not a *word* in his handwriting is known to exist." To the first part of this Mr.

Jeans appends the following "answer," in the form, however, of a query: "Did not William Prynne write *Histrio-mastix*, the Players' scourge? If Prynne ever met with anything of Shakspeare's, would he not have been likely to have destroyed it?" And on the closing remark, "not a *word* in his handwriting is known to exist," he makes the note: "So much the better for me," alluding to the "his booke, given him by Mr. Warner." He jots down figures which show that "Shakspeare was 32 years of age when this book was printed:" and adds: "So that this may have been written any time between 1596 and his death in 1616. I take it by the style," he then says, "to have been rather of the time of James I., than that of Elizabeth, when the Italian style was more generally adopted." He gives a tracing, made by himself, of "the autograph in Florio's Montaigne's Essays, 1603, Brit. Mus.," and one or two other fac-similes of signatures for comparison. On the name "Warner," which is slightly smeared, he remarks: "A gentleman at the British Museum told me he could clearly read the obliteration for "Warner," who, it is added, was "Author of Albion's England." Mr. Jeans makes likewise the note: "See page 175, also 203." On turning to these places, we behold certain vague marks of a pen on the margin, as though made by one thrown into a reverie by the thoughts expressed in the adjoining text.

Now all this, as I have said, must go for what it is worth. I choose to allow my copy of Gervaise Babington's *Comfortable Notes on Genesis* to enjoy every advantage which Mr. Jeans' surmises can impart to it. Were it required to establish a probability that Shakspeare had read Gervaise Babington's Notes, one or two remarkable coincidences of language might be dwelt on. For example, take the expression, "To have a man on the hip." Gervaise Babington uses it in connection with the story of Laban. "See a churle, *i.e.* a real churl, if ever you will see a kindly one, *i.e.* one connected by some natural relationship with the person sought to be oppressed. Jacob is his flesh and blood by birth, and his sonne-in-law by mariage; he hath both his daughters, and their children are many, bone of his bone, yet is he glad to have Jacob on the hip for a bad bargaine as he hoped." Now it happens that Shakspeare employs the same expression twice in a play where the story of Laban is made use of. "If I can catch him once upon the hip," Shylock says of Antonio, "I will feed fat the grudge I bear him;" *i.e.* the grudge for having,

among other things, brought down the rate of interest in Venice by lending out money gratis. But the expression is echoed by Gratiano, further on in the play, when the tables are turned against Shylock. "Now," Gratiano says, "now, infidel, I have thee on the hip." Again, notice some odious traits mentioned by Babington as marking Laban. "Then said Laban, What shall I give thee?" On this Babington observes: "Worldly minds love certainties, for feare anie liberalitie shoulde be expected at their hands. When a man knoweth his price, think they, he knoweth his paine, and if I pay that, he can challenge no more. I performe my promise; but if I leave it uncertaine, and let him stand to my curtesie, happily my credite may be cost-to, for I must content him, &c. Thus earthly and base minds have usually earthly and base conceits. Stil is their hand upon their halfe-penny." Have we not here the provident anxiety which Shylock evinces to have everything written down "in the bond?" Again, read Babington's language when commenting on the means by which Jacob obtained an extra number of piebald lambs. "By all which you see it appeareth plainlie, that togither with the working power of God, which in this was chiefe and ever is—yet even in nature and reason, this laying of partie-coloured rods to affect the imagination of the females at the time of their heate before their eyes, was effectual to bringing to pass a like colored yoong one to Jacobs gaine, whose bargaine was to have all such, and onely such." And then look at Shylock's account of the same matter. "Mark what Jacob did," Shylock says, "When Laban and himself were compromised that all the eanlings which were streaked and pied should fall as Jacob's hire, the ewes being rank, in end of autumne turned to the rams * * the skilful shepherd peeled me certain wands * * and stuck them up before the fulsome ewes, who, then conceiving, did in eaning time fall party-colored lambs, and those were Jacob's. This was the way to thrive." Shylock applaudingly exclaims, "And he was blest; and thrift is blessing, if men steal it not." Pausing only to interpose Antonio's just observation: "Mark you this, Bassanio, the devil can cite scripture for his purpose: an evil soul producing holy witness, is like a villain with a smiling cheek, a goodly apple rotten at the heart: O, what a goodly outside falsehood hath!"—let us note the expression, "party-colored," occurring in both places. Now this expression does not occur in the original narrative on which Babington is commenting. It is not

impossible, therefore, that the dramatist may have caught up the word from the language of Babington, when consulting him during the creation of his *Merchant of Venice*, in the little quarto of his *Comfortable Notes* which he possessed. Should it be suggested that the coincidence arose in a reverse way—that Babington may have been reading the *Merchant of Venice;* then let us imagine Warner, when visited as an invalid by Shakspeare, pointing out to his friend the complimentary fact, and at the same time asking Shakspeare to accept of the book, albeit somewhat the worse for wear.

In regard to the general question of Shakspeare autographs, it will be of interest to note here that there are six signatures extant, which are held to be undoubtedly genuine. Three are attached to the poet's Will; one appears on a Mortgage of a piece of property purchased by Shakspeare of Henry Walker, of Blackfriars; another is on the counterpart of the deed of bargain and sale of the same property; the sixth is in a copy of Florio's translation of Montaigne, now in the British Museum. (This Montaigne was from the library of the Rev. Edward Patteson, of Smethwick, near Birmingham. Previous to 1780, Mr. Patteson used to show the volume to his friends as a curiosity on account of the autograph.) Two later discoveries have been made of signatures which seem to be authentic. One is in an Aldine copy of the Metamorphoses, now preserved in the Bodleian; the other is in a translation of a portion of Ovid, which contains also the autograph of Dryden. In signatures of Shakspeare held to be genuine, a tendency to abbreviate is observable. Thus—W. Sh's, in the Bodleian book. In the Jeans autograph, so to designate the obscure characters in Gervaise Babington's *Comfortable Notes*, the contraction appears to consist in the leaving out of several letters of the first syllable of the name, with a kind of circumflex placed above to mark the omission.

Ah! if some of those loose sheets had survived on which the early sonnets to Southampton were written! or the paper book in which the later sonnets composed at the suggestion of the same nobleman were transcribed! Ah! if William Herbert, Earl of Pembroke, the subsequent possessor of that volume, had only demanded it back from Thomas Thorpe the printer, after its contents had been committed to type, and then deposited it in some safe place for the gratification of Shakspeare scholars in after times!—As one who findeth great spoils, would not the man rejoice who should light upon the original

draft of the Dedication of the Rape of Lucrece!—"To the Right Honourable Henry Wriothesly, Earl of Southampton and Baron of Titchfield. The love I dedicate to your lordship is without end, whereof this pamphlet, without beginning, is but a superfluous moiety. The warrant I have of your honourable disposition, not the worth of my untutored lines, makes it assured of acceptance. What I have done is yours; being part in all I have, devoted yours. Were my worth greater, my duty would shew greater; meantime, as it is, it is bound to your lordship, to whom I wish long life, still lengthened with happiness. Your lordship's in all duty, WILLIAM SHAKESPEARE."—But unavailing regrets now are all these! In the Heber Library was a copy of Warner's Albion's England, with a Shakspeare autograph supposed genuine. (This is the Warner who was possibly once the owner of my Gervaise Babington.) Sir Joseph Banks also had books distinguished in like manner. Mr. Thomas Fisher of the East India House likewise had a Bacon's *Advancement of Learniny*, enriched in the same way. But with each of these, now mentioned, the author of the Ireland forgeries is suspected to have had something to do. Some manuscript verses, subscribed "W. SH.," discovered at Bridgewater House, are considered by Mr. Collier as a genuine autograph. But even the forged productions, attributed to Shakspeare by the Irelands, father and son, in 1796, and fully confessed to be forgeries, have acquired a value as curiosities. One part of these Papers fetched some time since at a sale in London, £46 5s.

As a curiosity I show a specimen of a manufactured Shakspeare autograph, with an annotation thereupon in the handwriting of Mr. James Orchard Halliwell, the distinguished authority on Shakspeare subjects. It is contained in my copy of Annibal Caro's *Commento di Ser Agresto, sopra la prima Ficata del Padre Sicceo*, printed at "Bengodi" in 1584. Inside of its limp cover, under a fold of the old vellum, in which the book was originally bound, was to be seen the name of the great dramatist distinctly written. On the opposite side Mr. Halliwell had written: "See Shakspeare's autograph under the front edge of cover. I believe this forgery was once puffed, and sold for a considerable sum. J. O. H." When I had the little volume put in order, I converted that portion of the old vellum cover which bore the name, into a fly-leaf, as now seen. A value now attaches to the book on account of the autograph of Mr. Halliwell, of which I have already transcribed an example.

For Shakspeare's sake, so to speak, I look with unfailing interest on a little volume which I have, once possessed, and doubtless used, by David Garrick. It is a copy of Dr. Charles Patin's *Relations Historiques et Curieuses de Voyages en Allemagne, Angleterre, Hollande, Boheme, Suisse, etc.,*" printed at Amsterdam in 1695. It has inside, Garrick's book-plate—a tasteful design engraved on copper, showing the name DAVID GARRICK enclosed in an irregular framework of arabesques, surrounded by emblems of poetry, the drama and music, and surmounted by a spirited head of Shakspeare. Below, Garrick has caused to be engraved a salutary piece of advice to the borrowers of books: "La première chose qu' on doit faire quand on a emprunté un livre, c'est de le lire àfin de pouvoir le rendre plutôt." The authority for the passage is added—"Menagiana, vol. iv." Underneath all this has been inserted the following memorandum: "This book, which formed part of the library of David Garrick, Esq., was, among others, bequeathed by Mrs. Eva Maria Garrick, his relict, to George Frederick Beltz, Lancaster Herald, one of the executors of her will."

Garrick's quotation from Ménage recalls the amiable legend stamped on the exterior of Grolier's books—GROLIERI ET AMICORUM. Possessors of libraries generally find it unsafe in the long run to imitate Grolier. It was experience, doubtless, that induced Dr. Singer, formerly Fellow of Dublin University, to warn off borrowers by a Scripture text appended to his book-plate—"Go ye rather to them that sell, and buy for yourselves." Mat. xxv, 9.

I possess another memento of Garrick in the form of a silver medal or badge, worn by one of the officials at the memorable Garrick Jubilee held at Stratford-on-Avon in 1769. It bears on the obverse the head of Shakspeare, resembling that on the book-plate; surrounded by the words, "We shall not look upon his like again." On the reverse is the inscription: "Jubilee at Stratford in Honour and to the Memory of Shakespeare, Sep. 1769. D. G., Steward." D. G. are the initials of David Garrick. The badge still retains the little moveable silver loop through which the ribbon passed, by which in 1769 it was suspended on the breast of the wearer.

With my Garrick relics I associate a volume which was once the property of John Philip Kemble, the greatest interpreter of his day of Shakspeare on the stage. It is a copy of a Spanish New Testament, printed by Ricardo del Campo in 1506. The volume is finely

bound in calf with gilt edges, and it has stamped on its sides in gold the escutcheon of the Kembles, surrounded, in the style of mediæval seals, by a Gothic border and an outer rim bearing the legend JOHANNES PHILIPPUS KEMBLE.

I next produce a volume which there is some reason to think contains a few words in the handwriting of Milton. Genuine autograph scraps of John Milton are not uncommon. It is known that he was in the habit of annotating with his pen the books which he used. In the first volume of the *Museum Criticum* several papers are occupied with emendations made, the editor says, "singulari judicio et exquisitâ eruditione," found in the margin of his copy of Euripides, ed. Paul Stephanus. And in 1871, I observe a Pindar was about to be sold by Sotheby in London "filled with annotations in the poet's handwriting." In the library of Trinity College, Cambridge, the visitor is shown the original manuscript draught of Comus and Lycidas. It is a copy of Florio's *Worlde of Words* that contains the briefly written sentences which I am about to transcribe. The handwriting strongly resembles Milton's, as shewn in the *fac-similes* lately given by Prof. Masson in his *Life and Times of Milton*, and the *fac-simile* inserted at the beginning of Prof. Morley's little book, entitled *The King and the Commons*, to show the genuineness of an epitaph lately discovered in MS. with the initials "J. M." subscribed, which certainly seems to be the composition of Milton. Recalling the poet's early interest in Italy, it is likely that he would possess himself of a copy of Florio's *Worlde of Words*, which is in reality an Italian Dictionary: then, three complimentary sonnets at the opening of the volume, each of them having at the foot the Italian signature IL CANDIDO, which would arrest the attention of the author of the Il Penseroso. Into the mystery of this Il Candido he would naturally look, especially as the sonnets are not bad. He finds, on inquiry, that it is an English or rather a Welch name Italianized, and he makes a note of the discovery opposite to the signature at the end of the first sonnet. In doing so he employs the following words, which we can easily conceive to be Milton's, from their scholarly tone of gratified curiosity, as they seem also to be, as I have said, from the handwriting: "Gwin his name was," the commentator writes, "which in Wellsh signifieth white, and therefore calleth himselfe Il Candido, which is white in Italian." Again, the first sonnet is addressed "To the Right Honourable Roger Earle of Rutland, &c.;" to this the same

annotator has added "whose name was Manors." This remark seemed necessary, because at the end of the poem there is a play upon the family name—

> "By ancient manners stood the Roman State;
> From th' ancient stock yong Manors England graceth."

The fly-leaves, which usually bear the names of former possessors, have been wholly removed from my Florio; otherwise the book is in good condition, retaining the appearance which it wore in 1598, having its original binding of stout brown calf, rudely stamped and tooled. The title-page shows a beautifully designed wood-cut frame, consisting of two pillars sustaining a circular-headed arch, covered all over with ornament, fantastic and grotesque, but graceful. Within the frame is the following title: "A Worlde of Wordes, or Most Copious and Exacte Dictionarie in Italian and English, collected by John Florio. Printed at London by Arnold Hatfield, for Edward Blount. 1598." Below is the printer's or publisher's device: a dragon lying on its back; an otter or other animal biting its throat; in the background a landscape and city; above, a riband with the motto, *Non vi sed virtute.*" It was to this very work that Shakspeare alluded when he said of Holofernes, "the high fantastical," in "Love's Labour's Loste," that he seemed like a man "who had been at a great feast of languages and had stolen the scraps;" for in the character of Holofernes it is supposed that Shakspeare had a little fling at Florio. The name Holofernes itself has been conjectured to be an intentionally bad anagram of Joh-nes Floreo. The *Worlde of Wordes* is dedicated to Henry, Earl of Southampton, Shakspeare's friend, conjointly with Roger, Earl of Rutland, and Lucie, Countess of Bedford. With these, it is probable, as well as with Shakspeare and others, Florio, from a certain pomposity of phrase and manner, would occasionally be the occasion of good-humoured merriment. In his Address to the Reader, prefixed to the *Worlde of Wordes*, Florio likens himself to Socrates brought on the stage by Aristophanes. "Let Aristophanes and his Comedians make plaies," he says, "and scowre their mouths on Socrates: those very mouthes they make to vilifie shall be the means to amplify his vertue." He gives H. S. as the initials of a special offender in this respect. This may have been H. Sawell, a friend of Thomas Lodge, an actor and dramatist of the day. At the beginning of the same Address, he tells us that the same H. S., "lighting upon a good sonnet of a gentleman, a friend of mine,

that loved better to be a Poet than to be counted so, called the author a rhymer, notwithstanding he had more skill in good Poetry than my sly gentleman had seemed to have in good manners or humanity." Il Candido, perhaps, was the friend.

In a Florio's Montaigne which I have, Il Candido appears again. The name on this occasion is appended to a sonnet wholly in Italian, addressed in very adulatory terms to Anne, Queen of James I. The whole book is dedicated to the Queen by Florio, quite in the Holophernes' vein: "To the Most Royal and Renowned Majestie of the High-borne Princesse Anna, of Denmarke, by the Grace of God Queene of England, Scotland, France and Ireland, etc., Imperiall and Imcomparable Majestie. Seeing with me, all of me is in your Royall possession, and whatsoever peeces of mine have heeretofore, under other Starres passed the publike view, come now of right to be under the predomination of a Power, that both contains all their perfections, and hath influences of a more sublime nature, I could not but also take in this part (whereof time had worn-out the edition) which the world hath long since had of mine, and lay it at your Sacred feet, as a memoriall of my devoted duty, and to shew that where I am, I must be all I am, and cannot stand dispersed in my observance, being wholly (and therein happy) your Sacred Majestie's most humble and loyall servant, Iohn Florio." The date of the edition before us is 1632. The first edition appeared in 1603, and it is in a copy of this edition in the British Museum, that the autograph of Shakspeare appears. But interest attaches to all the folio editions of Florio's translation, for in them we see "the very form and pressure" of the tome which Shakspeare handled when he consulted the Essays of Montaigne.

An eminent Milton scholar was Sir Samuel Egerton Brydges, who, in 1835, published an annotated edition of *Paradise Lost*, "dedicated appropriately to William Wordsworth and Robert Southey." He considered himself the direct heir of the first Baron Chandos; and although the House of Lords decided against his claim, Sir Samuel occasionally subscribed himself "Chandos of Studely;" and it is in this form that I have his autograph in a volume of poems presented to him by Chandos Leigh, who writes thus on a fly-leaf: "To Sir Egerton Brydges, from *Chandos* Leigh, the author, who is proud of bearing the same family name." It was this inscription that doubtless induced Sir Egerton to write on the opposite page, in explanation, "Chandos of Studeley, given him by Chandos Leigh, 6th June, 1835."

I here close my account of historical autographs and other literary remains, which I have classed as British, reserving for review by themselves those connected with the two ancient universities of England. The specimens which I have to show of such objects, to be styled European or Continental, as distinguished from British, are few, and I shall be brief in my notices of them.

My first is a sign-manual of Napoleon Bonaparte, as First Consul. Although the document which contains it shows no words beyond the signature in the handwriting of Napoleon, it is an instrument characteristic of the period denoted by its date. It is a military Brevet on parchment, promoting the Citizen Mazula from the grade of Lieutenant in the 8th regiment of Hussars, to the rank of Adjutant-Major-Lieutenant. Mazula's previous positions in the army are enumerated with date of each step; also his campaigns: in La Vendée in 1793, on the Rhine in the year 5, in "Helvetie" in the years 6 and 7, in "Batavie" in the year 8, again on the Rhine in the year 9. It bears a large seal showing Liberty holding in the right hand the Phrygian cap on a spear, while with the left she strongly grasps the fasces and axe: the legend round the seal is *Au nom du Peuple Français. Bonaparte, 1er Consul.* At the top of the parchment is an engraved figure of France, grandly designed, seated, wearing a helmet, on which stands the Gallic Cock with the wings raised, evidently in the act of crowing; in the right hand of the seated figure is a heavy naked sword, its point inclined downwards; in the left hand are garlands; the left arm rests on a plain solid block, on which the words *Au nom du peuple Français* are engraved. Along the outer edge or thickness of the plain rectangular slab on which France is seated, the following inscription appears: *Bonaparte 1er Consul de la République.* The date of the document is given thus: "Donnè à Paris le trente fructidor de l' an Onze de la République." To the right of the seal above described appears the autograph signature, BONAPARTE. Difficult to decipher, looking as it does like two words, did we not already know the name, but legible enough, when we know. The first Consul chose to dash off his chirograph slantingly upwards, disregarding the parallelism observed in the other lines of the document. Below are the autographs of MARET, Secretary of State; and BERTHIER, Minister of War. Here, then—whatever may be the value of the fact—here, without doubt, on this parchment which we see, once rested for a moment the right hand, now turning to dust under the dome of the Invalides.

I have three other Napoleonic relics in the form of volumes from the libraries of members of the Bonaparte family. 1. A quarto from the library of Louis Bonaparte, King of Holland, husband of Josephine's daughter, Hortense, and father of Louis Napoleon, the Emperor of the French. On its title-page there is stamped in two places a shield, showing, as a cognizance, a crowned Lion rising out of the sea, with the popular Dutch motto below, "Doe wel in zie nict om." "Do right and look not round." The whole enclosed in an imperial mantle, powdered with the Napoleonic bees, and surmounted by a royal crown. Round the shield is the collar of an Order, sustaining the badge. The connecting links of this collar are also bees. The book itself in which the stamps appear is in the Italian language, and treats of the Ancient Baths, and other antiquities of Civitá Vecchia and its neighbourhood; also of its climate. It is by Gætano Torraca, and was printed at Rome in 1796 by Niccolo and Marco Pagliorini. It is dedicated in very abject language to "the most eminent and most reverend prince, the Lord Cardinal Gio. Francesco Albani, Bishop of Sabina, and Protector of the Kingdom of Poland." 2. Another volume from the same library, and showing the same stamps. This, like the other, was printed at Rome. It treats of the virtues of mineral waters near that city—the Acqua Santa, anciently the brook Almo, and the famous fountain of Egeria. The book is in Italian, but it contains many quotations in Latin. One from Abbot Tommaso della Valle, who sums up the qualities of the Acqua Santa thus: "Jecur refrigerat, humectat viscera; obstructaque aperit: abstergit arenam, viscum, calculos, et hypostases cunctas: roborat stomachum, lætificat cor: de etc. lubricat: operatur tum urina, secessu, vomitu, balneo; humores omnes peccantes et pravos expellit: in nihilo gravat, si vino bibendo miscetur, salutemque totam humano corpori reddit." There are two treatises on the Acqua Santa in the volume, both are by Franciscan monks. The first by Padre Mæstro Luigi Lami, the other by Padre Mæstro Gio. Battista Monetti; the latter is a "Dottore in Medicina." The orthography of the compound term "medico-fisico" on the title-page of this volume, is an instance of the strange aspect of illiterateness which the Italian language in some points wears to the eye of the educated Englishman. How can a scholar, we involuntarily ask, bring himself to spell physico with an *f*? Another instance of this occurs in Gætano Torraca's book. On its title-page, Torraca is entitled "Dottore di Filosofia e Medicina." Philosophia spelt with an *f*! This phonetic

rendering of grand old classic words is one of the footprints left by the Barbarians of the north. (I have a volume in Italian, entitled "Le opere di Senofonte tradotte dal Greco," printed at Venice in 1588." In Senofonte we scarcely recognize the Greek general and author, Xenophon. A similar difficulty throughout the book occurs in "Ciro" for Cyrus.) 3. A volume which has been presented by its author to Jerome Bonaparte, brother of Napoleon, husband of Miss Patterson, of Philadelphia, subsequently (1807-1813) King of Westphalia; and after the fall of the Emperor, styled Prince de Montfort. It is to him, under this last designation, that the volume referred to was inscribed in the following words, appearing on a fly-leaf in the handwriting of the author: "Alla Reale Mæsta di Girolamo Napoleone, Principe di Montforte: omaggio di profondo respetto, e di viva gratitudine umilemente offerto dall' Autore." The book itself is a work, on the Empire of Morocco by a Swede Jacopo Graberg di Hemso. It is in Italian, and was printed at Genoa in 1834. It is dedicated, in the usual style, to Leopold the Second, Grand Duke of Tuscany, Prince Imperial and Arch-Duke of Austria, Prince Royal of Hungary and Bohemia. It contains an admirable map of the Empire of Morocco (properly Mogrib-al-Acsa), and a number of engraved views; also a valuable index, helping one to understand numerous Arabic names and expressions.

Further Napoleonic interest attaches to this book. On its title-page is a stamp, showing that it once belonged to the library of Jerome's son, the Prince Napoleon, who still survives, the husband of a daughter of King Victor Emmanuel of Italy. The legend on this stamp is particularly curious. It reads thus: "*Bibliothèque du Citoyen, Napoleon Bonaparte.*" The political liberalism of Prince Napoleon is well-known. He was the *enfant terrible* of the family during the second Empire, and here he has caused himself to be designated after the affected manner of the République by the simple title of Citoyen. This was perhaps just before the advent to power of his cousin, Louis Napoleon. The following sentences from his pen in May, 1875 will, at least. show his political consistency: "Hereditary succession is really and truly dead in France, *de facto* as well as *de jure.* Since Louis XIV. not a king's son has succeeded his father. Napoleon I., who made the mistake of falsifying the true Napoleonic traditions by causing himself to be consecrated Emperor and King by the Pope in 1804, expired on a desert rock 2,000 leagues from the coast of France. Napoleon III., after having dreamed of destroying

the Mexican Republic, and of restoring the temporal power of the Pope at Mentana, fell miserably at Sedan, to go and die in a short time in a humble cottage at Chiselhurst. A third empire, which might aim at the restoration of Prince Napoleon or his nephew, would probably end in the St. Martin Canal. It would be the end of the country."

In the same year with the Great Napoleon (1769) another conqueror was born—Frederic Henry Alexander Humboldt; whose prowess, however, throughout a long life was displayed in peaceful fields. With Humboldt's name is associated the idea of almost universal knowledge. His *Cosmos; or Physical Description of the Universe*, is not the work of a closet philosopher; but the record of actual personal observation made during prolonged, studious excursions to the wide-spread and diversely-situated regions treated of. He was the inventor of the science of Comparative Geography, and the reviver of the study of the Natural Sciences. I have Humboldt's autograph in a copy of a work translated by Abel Rémusat from the Chinese, containing an account of the travels of Chy-fa-hian in Tartary, Afghanistan, and India, in the 4th century; splendidly printed at Paris in 1836, at the Imprimerie Royal. At the end of Chy-fa-hian's book are four finely-engraved maps, one of them a fac-simile Chinese map of India: also copies of Chinese pictures showing the incarnation and birth of Buddha. Low down on a fly-leaf at the beginning of the volume appears the autograph on account of which I specially prize the book—in this wise—A. V. HUMBOLDT. This work was mastered by Humboldt, it may be, when preparing for his journey to the Eastern Provinces of Russia and frontier of China; and the composition of his *Central Asia: Researches on its Mountain Chains, and Climatology.* The personal appearance of Alexander Von Humboldt is familiar to most persons from the fine busts of him that are frequently to be seen.

I have a volume from the library of another modern German of great note—the Chevalier Bunsen. It is a folio: two volumes in one, consisting of a collection of ancient Etruscan, Roman, and Greek inscriptions found at Perugia, and published at Perugia in 1833 by Gio. Battista Vermiglioni. It is labelled on the back "Inscrizione Perugine." Within is to be seen Bunsen's book-plate and arms, with the motto, *In spe et silentio*, and beneath, *Ex libris Christiani Caroli Bunsen.* Inserted is a half sheet of note-paper with some characteristic memoranda in the Chevalier's handwriting, partly in German,

partly in Latin, and partly in Greek; among other references there is one to *Leo Allatius de Melodis Græcorum*, and a list of terms in Greek, written in a flowing, easy hand. Bunsen lived for many years in Rome; first as Secretary to the Prussian Embassy at the Court of Rome, and then as Ambassador. While there he engaged, along with Niebuhr, enthusiastically in the study of Roman topography and antiquities. The Perugian Inscriptions were probably acquired by him while living in Rome. Besides the ancient Etruscan, Latin and Greek inscriptions, there are some added which are seen to be Christian by the phraseology or the adjoined symbols *XP*, *AΩ*, and the palm-branch. I subjoin one of this class for the sake of its brevity: *Secundus et Fortunata vivamus*, *i.e.*, Secundus and Fortunata, probably man and wife, say as they disappear within the tomb, Let us begone to life! *i.e.*, the true Life, the Life eternal. If we find anywhere in the letters of Bunsen a reference to Vermiglioni's Inscriptions, this is the identical copy of the work which he had in mind. Bunsen married an English lady, and resided long in England. A London *Spectator* of 1850 gives an account of a ludicrous scene in the House of Lords, occasioned by Bunsen's casual presence with some ladies in a gallery which was appropriated to peeresses. For some reason or other the spirit of Lord Brougham was especially stirred at the sight. "A breach of privilege!" he excitedly exclaimed, "there is a gentleman yonder who has no right to be there; if he does not instantly come down I shall address the House on the subject." This threat he reiterated amidst "roars of laughter both in the House and among the peeresses." The *Times* of the next day had an editorial on the subject, in which the manner of Lord Brougham, "the sole originator of the unseemly exhibition," is more minutely described. "Imagine Wright at the Adelphi, or Keeley uttering a tissue of coarse drolleries, and giving effect to every point by contortions of face and figure, and still the image will fall short of the reality. The quaint figure of the noble and learned Lord, as with his strong Border 'burr' he delivered his points, must be brought before the imagination." In the same article, the *Times* took occasion to say: "It is now many years that the Chevalier Bunsen has dwelt among us, and comported himself in a manner in every way worthy of a gentleman and a scholar. Setting aside for a moment his official character, and the respect due to him as the representative of a cultivated and powerful nation in amity with England, one should have supposed that great consideration would

have been paid to this distinguished man on personal grounds. Charitable, kind-hearted, hospitable, ever ready to advance with his counsel and his means the interests of literary men, and the broken fortunes of all, the most hot-headed political partisan might have hesitated to aim an affront at such a man. But had the personal character of the Prussian envoy stood as low as that of the most ill-conditioned diplomatist that ever lived, still, from his official position, he was entitled to every outward mark of respect."

My last historical European autograph is that of Cardinal Mezzofanti, one of the lions of Rome down to 1849. His great distinction was a facility in the acquisition of languages, to the minutest differences of dialect and shades of *patois*. At the college of the Propaganda, where all living languages are currently spoken, by missionaries or students from all parts of the world, Mezzofanti could converse with each in his own tongue and idiom. If, it is said, he was addressed for the first time in a language or a dialect new to him, he listened with a wonderful power of attention, decomposed the sounds in his mind, searched for the analogies, sought out the roots. In a short time all was clear to him: he was master of the lexicon and the grammar of the hitherto unknown tongue. My autograph of Mezzofanti is one which was presented by him to the distinguished English botanist, Dawson Turner. It reads thus, first in English: "To the famous author of Historia Filicum." Then the same words are repeated in German: then follows a sentence clearly written in Hebrew, without points, with a translation in English: "Great are all the works of God; and you, investigating the smallest herbs and giving them a name, obtained a great name to yourself." The whole is addressed to "Mr. Dawson Turner." Lord Dudley, in a letter to the Bishop of Llandaff, 1841, thus speaks of Mezzofanti: "I had a letter to Professor Mezzofanti, who is famous all over Italy for his wondrous knowledge of languages. He is said to know thirty-six in all, of which he can speak twenty-two. You may suppose how much of this I was obliged to take upon trust. However, he certainly speaks English in a way that quite surprised me; particularly in an Italian, and one that had never stirred out of Italy. He is a man of pleasing, simple manners, but his conversation does not give one any notion of his being possessed of any remarkable talent. Indeed, a person of great ability would hardly have sought distinction from so useless a pursuit. He must have an immense memory, and that is probably all."

CRITICAL NOTES:

CHIEFLY ON THE DE LEGIBUS OF CICERO.

BY W. D. PEARMAN, M.A.,
Classical Tutor and Registrar, University College, Toronto.

In sect. x. of the Treatise of LONGINUS, "De Sublimitate," the last sentence of the section has been described by editors as a "*locus plane conclamatus.*" It reads as follows: *Λυμαίνεται γὰρ ταῦτα τὸ ὅλον ὡσάνει ψήγματα ἢ ἀραιώματα ἐμποιοῦντα μεγέθη συνοικονομούμενα* (v. l. *συνοικοδομούμενα*) *τῇ τε πρὸς ἄλληλα σχέσει συντετειχισμένα.* Among other alterations, it has been proposed to insert the article *τά* before *ἐμποιοῦντα.* The chief objection to this reading, in my opinion, is, that the force of the preposition, in the compound *ἐμποιοῦντα*, is neglected. A proper attention to this will, I think, give us the key to the sentence. Longinus says that the most prominent incidents are alone selected, nothing which does not add to the dignity of the subject being foisted in, "for such things mar the whole, introducing shavings or splinters, as it were, into lofty structures compacted and built up together by their mutual relation." In cases where a verb compounded with a preposition is employed, we not unfrequently find, either from the negligence of the copyist or of the writer himself, that a preposition is omitted which should properly follow the compound verb. In the present case, we should expect, according to Attic usage, *ἐμποιοῦντα ἐς μεγέθη*; but, as Longinus does not always conform to the rules of Attic Greek, there does not appear to be any particular necessity for meddling with the text.

In the "De Legibus," of Cicero, Bk. I. ii, 7, the MSS., as quoted by the different editors, exhibit a variety of unintelligible readings. The following is said to have most authority in its favour: "*Nam quid Macrum numerem? cujus loquacitas habet aliquid argutiarum—in orationibus autem multas ineptias, datio* (or *dacio*) *summam impudentiam.* According to this reading, the chief difficulty is the word *datio.* What is *datio?* All the editors admit that it is a corruption; but there is considerable difference of opinion as to what should be substituted for it. No reading, except *elatio*, appears to have found

any supporters beyond its original proposer. But, apart from the fact that it is difficult to see how *elatio* would be corrupted into *datio*, "bombast" does not seem to have been the particular feature with which Cicero was displeased in Macer's style and manner of speaking. In the "*Brutus*," LXVII, 238, Cicero says of him, "Hujus (Macri) si vita, si mores, si vultus denique non omnem commendationem ingenii everteret, majus nomen in patronis fuisset. Non erat abundans non inops tamen; non valde nitens, non plane horrida oratio; vox gestus et omnis *actio* sine lepore." From a consideration of this passage, I have been led to suspect that the original was *sed actio*. The change is easily accounted for, and we have no further than this very book to go for examples of a precisely similar corruption. The initial *s* of *sed* would be confounded with the final *s* of *ineptias*. Examples of this are § 29, where the MSS. exhibit *omnes sunt omnium* and *omnes omnium;* but Davies and others maintain that the original was *omnes essent omnium;* and § 55, *singulis* for *singuli sed*. When once *se* is absorbed, we have the reading *datio* or *dacio*, since it is very common, where the letters *ct* occur together in a word, to find one or other of them omitted, as they are said to be scarcely distinguishable from one another in MSS. For instance, in this passage itself, for the word *Macrum* we have the various readings, *acrum, actium, accium, acium, atium.*

Ibid: I. xi, 31. Here we find even greater confusion among the MSS. than in the passage noticed above. In fact, it is frequently difficult to detect any resemblance between the various readings. That which is here proposed approaches more nearly to the MSS. than any of those with which I have met in the different editions which I have consulted. Cicero gives, as an instance of the wonderful similarity among men, as well in their virtues as in their vices, the fact that all are caught alike by the lure of pleasure, "which, although an enticement of evil, has still some semblance of a natural good," "*levitatis enim et suavitatis est, et suavitate delectans* sic ab errore mentis, tanquam salutare aliquid, asciscitur:" "for it belongs to smoothness and sweetness, and delighting them by its sweetness, through a mistake of the mind is rashly approved, as if it were something beneficial." "On the contrary," he says afterwards, "pain is considered one of the greatest of evils, *sua asperitate*," where *asperitas* would seem to answer to the preceding *levitas*. Those MSS. which Bäke considers to be generally of most authority have *levitatis est*

enim (or *etenim*) *et suavitatis delectans*, &c.; others of less authority, *levitatis enim et suavitatis est enim et suavitate delectans*, &c. The atter reading is, in all material respects, the same as the one proposed by me. The second *enim* is manifestly due to the carelessness of the copyist, and is a sufficiently natural mistake for him to make. Madvig attaches great importance to a MS. which he calls the "*Codex Havn*:" and, curiously enough, remarks that in it there is a gap, between *suavitatis* and *delectans*, sufficient for three words, on which account he considers the passage defective. These "three words" I conceive to have been the '*est et suavitate*' found in some of the inferior MSS. The original cause of the corruption was, in all probability, the confusion of the words *et suavitate* with the preceding *et suavitatis*.

Ibid: I. xiv, 40. "At vero scelerum *in homines* (or *omnes*) atque impietatum nulla expiatio est." Here I suspect that the words *in homines* have crept into the text from the marginal annotation of some commentator, who wished to draw a distinction between *scelerum* as "sins against men," and *impietatum* as "sins against the Gods;" whereas the phrase seems to be simply one of those cumulative forms of expression which are so common in Cicero. Just before this passage there is a gap in the MSS., and it has been conjectured that, in the part which is missing, Cicero criticised the boast of the Epicureans, that their master had freed men from the bondage of superstitious fear; "for," he says, "even in those matters we have been sufficiently purified without that man's fumigations; but, assuredly, there is no purification from real crimes and acts of impiety." Bäke would substitute *in animis* for *in homines;* but this would appear to be unnecessary, if we lay stress upon *scelerum*, &c., "real crimes" as opposed to mere superstition.

Ibid: I. xvi, 44. "Nam et communis intelligentia notas nobis res efficit *eaque* (v. l. *easque*) in animis nostris *inchoavit* (v. l. *inchoat*) ut honesta in virtute ponantur in vitiis turpia." I propose to read—*ea quæ . . . inchoata'st, ut . . .* Cicero has just said that not only "right" and "wrong" are determined by nature, but also all things "honourable" and "base" in like manner "for our 'communis intelligentia' also, that which is originally implanted in our minds, makes things known to us, so that the honourable are accounted among the virtues, the base among the vices." By the words "*communis intelligentia*," Cicero means the κοιναὶ ἔννοιαι of the

Stoics. (Locke's "innate ideas.") In chap. ix. § 27, the words "*inchoata intelligentia*" are employed in the same sense; and I think that Cicero is here referring to that passage. Some commentators have proposed to read . . . *eas quas* . . . as if the "ideas" were implanted by the "*communis intelligentia;*" but it has been justly objected that throughout this book the origin of these "inchoatæ intelligentiæ," ("imperfect rudimentary ideas" or "notions," which gradually become strengthened and perfected), is attributed to God or Nature, and nowhere to the "intelligentia" itself. If I am right in my conjecture, the corrupt readings in the MSS. would arise from the confusion of the relative pronoun *quæ* with the enclitic *que;* since, in MSS., both are sometimes indicated by the same *compendium.* The reading *inchoat* found in several MSS. points out a way of accounting for the further change. It would seem as if the participle, perhaps written in a contracted form, had been mistaken for the verb; and this mistake will not seem so improbable, if we consider how largely contractions were employed in MSS. For instance, in the fac-simile of only a small portion of one, given in "Silvestre's Palæography," (a book, for reference to which I have to thank the learned President of University College), I found many instances of words merely indicated by their first syllables, or by consonants alone, the vowels being omitted.

Ibid: I. xix, 50. The MSS. exhibit a perfect *farrago* of readings: "ac me nimis istorum philosophorum pudet, qui *ullum* (v. l. *nullum*) vitium (v. l. judicium) *vitare nisi vitio* (v. l. *judicio*) *ipso notatum* (v. l. *mutatum* or *mutato*) putant;" nor are the emendations, proposed by different editors, less at variance. Madvig's conjecture, *vitandum* for *mutatum,* and Klotz's *vitato* point the way to what I consider to be the true reading, viz.: qui *ullum vitium vitari nisi vitio ipso vitato* putant. Cicero says that he is "excessively ashamed of those philosophers who think that a fault is avoided at all unless the actual fault is avoided." This is directed against those (the Epicureans) who held that things were not in themselves *turpia* or *honesta,* but only so with reference to the standard of convention; whereas, he says, that it is the fault itself which is disgraceful, and not the infamy arising from it, and that, accordingly, we do not at all avoid a fault by merely guarding against its consequences.

Ibid: I. xxii, 59. "Intelliget, quemadmodum a natura subornatus in vitam venerit, quantaque instrumenta habeat ad *obtinendam*

adipiscendamque sapientiam." The difficulty here lies in the words "*obtinendam adipiscendamque.*" Cicero says, that a man who has complied with the divine precept, γνῶθι σεαυτόν, will understand how well nature has equipped him for the battle of life, and how great a store of materials he has for "holding on to," (or "preserving") and "acquiring" wisdom. Madvig calls this a "*durissima hysterologia,*" because it is necessary to "acquire" a thing before one can "keep" it. It seems to me, however, that Cicero himself explains his meaning further on, where he says that, "nature has implanted in us certain rudimentary 'notions' of things, which are afterwards perfected," and I think that *obtinendam* properly refers to these original "notions," *adipiscendam* to the more perfect knowledge, which is subsequently acquired.

Ibid: I. xxiii, 60. "Societatemque caritatis *eiecerit* cum suis." This is said to be the reading of all the best MSS.; but, as *ejecerit* is plainly unintelligible, it has been variously altered into *conjecerit* or *coierit,* &c. A statement which Munro, in his notes on Lucretius (Bk. I. 34), has made, concerning the orthography of compounds of *jacio* (viz., that the best MSS. have always *conicit,* not *conjicit; reicit,* not *rejicit,* and so forth), led me to think that *eicerit,* which, in any case, should be read here, was not from *ejicio,* but from the verb *icere* "to strike," and that "*societatem eicerit*" is used like "*fœdus-icere.*" Instances of *ei* being substituted for the long *i,* are sufficiently common in MSS. I produce two from this treatise itself. In Bk. I. xxiii, 61, some editors retain the reading *eidem* for *idem,* and we have *utei* for *uti* in Bk. II. x, 24. In Lucretius, Bk. VI. 1217, Munro, with Lachmann, retains the MS. reading *exeiret,* and in verse 1221 of the same book, *exeibant* in preference to the modern spelling *exirent* and *exibant.* (See also Munro's note on Lucretius, Bk. III. 97).

Ibid: II. iv, 9. "Sed vero intelligi sic oportet, et hoc et alia jussa ac vetita populorum vim (*non*) habere ad recte facta vocandi et a peccatis avocandi, *quæ vis* non modo senior est quam ætas populorum et civitatum, sed et æqualis illius cælum atque terras tuentis et regentis dei." Editors before Bäke were unanimously of opinion that the negative *non* was absolutely necessary to the sense of this passage; and, in most cases, they admitted it into the text, at the same time acknowledging that it was not to be found in the MSS. Bäke however has, I think, satisfactorily shown that *non* is unneces-

sary. Cicero has been arguing against the vulgar notion that the laws and enactments of nations have of themselves an inherent power exhorting to virtue and restraining from vice; at the same time he concedes that laws, generally speaking, do possess this salutary power: but, in accordance with the principle which he follows throughout this treatise, he asserts that this power is, in its origin, anterior not only to all written laws, but even to all states and peoples, being, in fact, coeval with the supreme deity. The reason why this passage has been generally misunderstood is that in the sentence *quæ vis*, etc., we have apparently a mere explanation of that which immediately precedes; whereas it is in reality opposed to it, in the nature of a qualification. We may, I think, obviate all difficulties with regard to the mutual relation of these two sentences, and at the same time explain certain anomalies in the various readings of the MSS., otherwise unaccounted for, if we read *quæ tamen vis* instead of *quæ vis*. This reading, which seems to be required in order to elucidate the meaning, will also account for the several corruptions (*quæ tuis*, B., *quinte avis*, C., *quinte tuis*, E.) found in what are generally considered to be the most trustworthy MSS. Nor, if we consider that the letters *m* and *n* in MSS., are usually indicated merely by a horizontal stroke (e. g., *cælō* for *cælom*), is it less difficult to account for the presence of the superfluous letters, if we read *quæ vis*, than for the absence of one or other of the letters wanted to form *tamen*, which again is actually required by the sense.

Ibid: II. viii, 19. "*Divos et eos, qui cælestes semper habiti, colunto et ollos, quos endo cælo merita* locaverunt, *Herculem*, etc." The MSS. all exhibit *vocaverunt*, but the editors with almost equal unanimity, have altered this into *locaverunt* or *locaverint;* simply on the ground that it is so quoted by Lactantius (*Inst. Div.* I. 15, 23). On the other hand, not only does Lactantius elsewhere, when quoting from this treatise, intersperse his own words among those of Cicero, but we have here an additional reason for adhering to the reading *endo cælom merita vocaverunt* given by the MSS., in the fact that the archaic forms *endo* and *indu* (for *in*) appear to have been used respectively, the former with an accusative case, and the latter with an ablative; at least such seems to have been the usage of Ennius, according to Munro (Lucret. I. 82.)

Ibid: II. viii, 20. "*Alterum, quod interpretetur fatidicorum et vatum effata* incognita, *quorum senatus populusque adsciverit.*" In

the explanation of this law, which Cicero gives in § 30 of this book, after commenting on its several provisions, he adds "*neque ut ea ipsa, quæ suscepta publice essent*, quisquam extra collegium nosset." This, I think, is intended as an explanation of the word *incognita* used in the law, which would in this case have to be rendered as a predicate equivalent to "*ita ut incognita sint.*" Otherwise the sentence "*neque ut*, etc.," would appear to be otiose.

Ibid: II. ix, 21. "*Fœderum, pacis belli, induciarum* oratorum (v. l. *oratores*), *fetiales judices sunto* (v. l. *non sunto*), *bella disceptanto.* The difficulty here lies in the word *oratorum* which is said to be found in all the best MSS., while the v. l. *oratores*, only met with in those MSS. which are of least authority, is apparently a mere attempt at emendation on the part of the transcriber of the MS. Most editors, though confessing that this reading is far from being satisfactory, have adopted *oratores.* Madvig's explanation of *oratorum*, as if it were the genitive of the neuter *orata*, i. e., "terms asked," has generally been considered inadmissible. The reading which I myself propose, viz., *ratorum* instead of *oratorum* was suggested to me by the consideration of one of the causes of corruptions in MSS., which Madvig, in his "Outlines of the Art of Conjectural Criticism," ("*Artis Criticæ Conjecturalis Adumbratio*," published in the first volume of his "*Adversaria Critica*,") states that he considers to be the most fruitful of all sources of error, viz., the fact that in MSS. words were in many cases written continuously, no distinction being made between the initial letter of a word and the final letter of that one which immediately preceded it. Hence, Madvig tells us, nothing is more common than for a copyist, when the same or similar letters or even syllables concur, either to omit one or more of them, or, on the other hand, to repeat a letter or syllable, especially if by doing so he can form a more familiar word than the original one; his eye being deceived by the similarity of the characters, and his mind seizing upon the more common word, in preference to one less familiar. In the present instance the original copy would I imagine, be written thus "induciarōratorū," i. e., "*induciarom raiorum;*" the letters *o* and *u* are constantly interchanged, especially in the genitive plural, and we must bear in mind that in this passage, Cicero avowedly uses archaic forms (See II. vii, 18); in fact, in this very sentence, Vahlen edits *indotiarum* for *induciarum.* According to the reading which I propose, Cicero directs that the *Fetiales* should "be judges of the ratifi-

cation of treaties, peace, war and armistices," *ratorum* being referred equally to each of the preceding nouns, and being of the neuter gender according to the general rule. The decision of these matters was peculiarly the province of the "*Fetiales;*" (See Dictionary of Antiquities: "*Fetiales.*") With regard to the v. l. *non sunto*, some editors omit *non* altogether, as it is not to be found in all MSS.; others with Lambinus read *duo sunto;* perhaps the most ingenious emendation is that proposed by Vahlen "*nontii sunto,*" i. e., *nuntii sunto.* However that given by Lambinus is said to be supported by the authority of some MSS., and Davies quotes Livy Bk. IX. 5, to prove that the "*Fetiales,*" whose names were mentioned in connection with the treaty, were *two* in number.

Ibid: II. x, 26. "*Nam a patribus acceptos deos ita placet coli, si huic legi paruerint ipsi.* Patrum *delubra esse in urbibus censeo:*" In explaining this passage, editors have usually had recourse to one or other of two methods: the former that ruthless kind of criticism which attributes every difficulty to the malice of some designing interpolator, and accordingly uses the critical pruning knife with unhesitating hand. Madvig (*Advers. Critica*, vol. I, p. 64) says that "*Bakius et alii Batavi et Germani*" are much too prone to resort to this "refuge of despairing critics," and it is only fair to say that in the present instance, the learned Dutchman has not departed from his wont: "*Patrum,*" says he, "*contra omnium librorum auctoritatem abjiciendum erit.*" We may remark, *en passant*, that the "Prince of modern critics," as the Copenhagen professor has not undeservedly been styled, has himself been convicted of repeated offences against his own canons, in the emendations which he has proposed in this particular work of Cicero's. When, however, we take into account the fact that at the time when Madvig published the greater number of his emendations of the *De Legibus* of Cicero, he was scarcely twenty years old (see Introduction to *Adversaria*, vol. I.), we lose every other feeling in that of wonder at the extraordinary genius of this remarkable man. Those who adopt the second method maintain that *Patrum* is here used for *Deorum*, and produce parallel passages to prove that, in prayers and addresses to the Gods, they were frequently called *Patres;* but, as has been very justly observed, this is a very different thing from speaking of them generally as *Patres.* A more plausible explanation is that of Scheffer, who thinks that *Patrum delubra* is the same as "*constructa a patribus delubra,*" which

is one of the various readings found in the law itself (ii. viii. 19); but, as this reading has been generally rejected in that place, we cannot allow it to be used here to confirm another of equally doubtful authenticity. The conjecture which seems to me most satisfactory is that of Wyttenbach, who would arrange the words thus—*si huic legi paruerint ipsi patres. Delubra* . . . This arrangement does not affect the sense of the passage, which in this case remains the same as it would be if *Patrum* were omitted from the text. At first sight, the sentence commencing "Delubra esse, etc.," seemed to me to require some connecting particle or other word of introduction, such as *ceterum* (the orthography of which varies between *cæterum*, *cætrum* and *ceterum*). *Ceterum* "for the rest," "to continue," (compare the French "*du reste*,") is regularly used after a digression, where the speaker, dismissing a subject which he has been led parenthetically to discuss, resumes the thread of his discourse. This word is, I think, not unlikely to have become corrupted into *patrum*, especially as the eye of the copyist would naturally be caught by *patribus* in the line above. However, I am inclined, after consideration, to give Wyttenbach's conjecture *patres* the preference.

Ibid: II. xiii, 33. "*Itaque neque illi assentior, qui hanc scientiam negat umquam in nostro collegio fuisse; neque illi, qui esse etiam nunc putat; quæ mihi videtur apud majores fuisse* dupliciter, *ut ad reipublicæ tempus non numquam ad agendi consilium sæpissime pertineret.*" Here we have the various readings *dupliciter* and *duplex*: the former of which is said to have the best MS. authority, while it is at the same time the most awkward to explain. I cannot help thinking that the original must have been *fuisse* duplex, ita *ut* . . and that this passed into *dupliciter*, owing to that practice of continuous writing to which I have above alluded.

Ibid: II. xvii, 44. "*Tantum ponam brevi* (v. l. *erui*), *duplicem pœnam esse* divinam quod (v. l. *quæ*) constaret (v. l. *constat et*) *et vexandis* (v. l. *ex vexandis*) *vivorum animis et ea fama mortuorum ut eorum exitium et judicio vivorum et gaudio comprobetur.*" The text, as it now stands, is obviously corrupt, and requires emendation. Davies would read, "*quod constat et ex vexandis* . . . *et ex ea fama.*" . . . Ernesti, (who has evidently been misled by Davies' practice of following the *vulgate* in his text, and stating in his notes what he himself considers to be the true reading,) says that he agrees with Davies in "omitting" *ex*, and thinks that *et* also might be dis-

pensed with; he would read, *quæ constet vexandis.* . . . Bäke (who is, I think, right in so far as he maintains that "*constat*" here means "is recognized or made manifest"), like the others evidently considers that it is the "*pœna divina*" which Cicero says is "two-fold;" in which case his rendering of "*constat*" hardly suits the sense so well as the ordinary rendering "consists of," because, if we understand Cicero to say that the "*pœna divina*" is *two-fold*, it is natural to expect that he will tell us *why* it is so, viz., "that it *consists* of a troubled conscience during life and infamy after death." Madvig proposed, *divinam eamque constare et ex,* . . . and although this conjecture has been, I think, justly rejected, and does not throw any light upon the meaning of the passage, it nevertheless points the way to what seems to me to be the true reading, viz., *duplicem pœnam esse,* divinamque constare et *vexandis vivorum animis et ea fama mortuorum, etc.* In the preceding sections, Cicero endeavoured to show that offences against religion are always punished sooner or later; as a proof of this he instances the dreadful disasters which had befallen those unhappy men who had driven him, "the saviour of his country," into exile; and, in order to give himself an opportunity of explaining an apparent anomaly, he makes his brother Quintus say, "I acknowledge the truth of what you say, but still we too often see it turn out far otherwise." This, Cicero tells us, is owing to a mistaken idea of the nature of punishment, which men are too apt to confuse with afflictions such as even good men are liable to incur, for instance, bodily or mental suffering, and death, etc. Whereas the sin itself is its own true punishment, *et præter eos eventus qui sequuntur per se ipsa maxima est.* The immediate consequences of sin are said to be comparatively of little importance. We see that the distinction, which Cicero wishes to draw, is between the "*pœna divina*" and the "*pœna humana,*" *divine* and *human* punishment—the former of which, he says, is too often lost sight of. Accordingly I would translate the passage in question, as follows:—"So much I will briefly state, that punishment (or "retribution") is of a two-fold nature, and that the divine punishment is manifested both by the consciences of (wicked) men being troubled during their lives; and by their character being such after death, that their destruction is fully approved as well by the judgment as by the joy of the living."

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

(*Continued from page 387.*)

H.

Haldimand Cove is a little to the eastward of Kingston harbour, and made by the Points Frederick and Henry. On the west side of this cove is the King's dockyard, and provision stores, wharf, etc.

Haldimand Point. See Point Frederick.

Haldimand Township, in the County of Northumberland, lies to the west of Cramahé, and fronts Lake Ontario. [From Sir Frederick Haldimand, Governor-General of Canada 1778-1785.]

Hallowell Township, in the County of Prince Edward, is a new township formed out of the townships of Marysburgh and Sophiasburgh: it lies at the southern part of the county, open to Lake Ontario. [From Benjamin Hallowell, father-in-law of Chief Justice Elmsley.]

Hamilton Cove, is a little to the east of Haldimand Cove, and separated from it by Point Henry. Cedar Island, is off the mouth of this cove.

Hamilton Point, the east point, which makes Hamilton Cove, having Point Henry on the west.

Hamilton Township, in the County of Northumberland, lies to the westward of Haldimand, having Lake Ontario in its front, and the Rice Lake in its rear. [From Henry Hamilton, Lieut.-Governor of Quebec in 1785.]

Hare Island lies at the west end of Hay Bay, in the Bay of Quinté.

Harsen's Island, near the entrance of the River St. Clair, east of Thompson's island; it contains near three hundred acres of land fit for culture: the other parts of it are meadow and marsh.

Harwich Township, in the western district, lies to the west of Howard, having Lake Erie to the south, and the River Thames to the north. [From Harwich, a sea port in Essex.]

Hastings County is bounded on the east by the County of Lenox; on the south by the Bay of Quinté, until it meets a boundary on the easternmost shore of the River Trent; thence along the river until it intersects the rear of the ninth concession; thence by a line running north 16 degrees west, until it interests the Ottawa or Grand River; thence descending the said river until it meets the north-westernmost boundary of the County of Addington. The county comprehends all the islands near it in the Bay of Quinté and River Trent. The greater part of the county fronts the Bay of Quinté. The boundaries of this county were established by Proclamation the 16th July, 1792. It sends, in conjunction with the Counties of Northumberland and Lenox (excepting Adolphus-town), one representative to the Provincial Parliament. [From the family name of the Earl of Huntingdon. There is a Huntingdon township in this county. In the second edition, after "south by the Bay of Quinté," we read, "and on the west by the County of Northumberland." After "Lenox" in the closing sentence "excepting Adolphus-town" is inserted.]

Hawkesbury Township, in the County of Glengary, lies on the Ottawa River, adjoining to Lower Canada. [From the parish of Hawkesbury in Gloucestershire.]

Hay Bay, in the township of Fredericksburgh, running south-westerly into East bay, makes the fork of the north channel of the Bay of Quinté. [Probably from "wild hay." Thus we have Pointe au Foin in Edwardsburg.]

Henry Point is the east point of Haldimand Cove, which is formed by it and Point Frederick on the west. Probably "Henry," like "Frederick," was one of the names of Governor Haldimand.]

Herbes, Pointe aux, on the north shore of Lake St. Francis, lies east of the River aux Raisins.

Hesse, now called the Western District by an Act of the Provincial Legislature, in the first session.

Hinchinbroke Township, in the County of Frontenac, to the north of Portland and west of Bedford. Second edition. [Viscount Hinchinbroke is the second title of the Earls of Sandwich.]

Hog Island, below Peach Island, is situated in the strait of Detroit, where it opens into Lake St. Clair: the lower end of it is about two

miles above Detroit; it contains about 300 acres of land fit for tillage, and a large quantity of marsh and meadow land. It has some wood on it: the land is low, but valuable for pasturage, is rich, improved, and contains about 1,700 statute acres.

Holland's River runs from the south-west, and empties itself into Cook's Bay, Lake Simcoe. [From Major Holland, Surveyor-General of the Province of Quebec in 1790.]

Home District, The, was originally constituted and erected into a district by the name of the District of Nassau, in the Province of Quebec, by his Excellency Lord Dorchester's Proclamation of the 24th of July, 1788. It received its present name by an Act of the Provincial Legislature. It is bounded easterly by a meridian passing through the mouth of the River Trent; northerly by the Ottawa River into Lake Tamiscaming, and the bounds of the Hudson's Bay Company; also by part of Lake Huron; westerly by a meridian passing through the eastern extremity of Long Point or the North Foreland; and southerly by part of Lake Ontario and part of Lake Erie. [The Home District was so named from the fact that York, the seat of the Provincial Government, was situated in it. In the Second Edition, the above reads as follows: It is now bounded easterly by a line running northward from between Whitby and Darlington townships, on the Lake Ontario, to Talbot River, and from thence to Lake Nipissing; westerly by London District; and on the south by the District of Niagara and the Lake Ontario.]

Hope Township, in the County of Durham, lies to the west of Hamilton, and fronts Lake Ontario. [From Admiral Sir George Hope.]

Hope's Cove, one of the principal harbours in the Bass Islands, Lake Erie, close to St. George's Island.

Hocquart Isle, in Lake Superior, lies southerly of Michipicoten Bay, and northerly of Isle St. Ann. [Probably Maurepas or Michipicoten Island. This article is not in the second edition. M. Hocquart was Intendant at Quebec in 1755.]

Horn, Cape, is on the east main, at the north end of Muddy Lake, and at the entrance of the strait that leads from Lake George; to the northward of it, in the strait, are high rocks.

Hospital Island, in the River St. Lawrence, in front of the township of Edwardsburgh, contains about 100 acres; it lies immediately above Point au Gallop.

Houghton Township, in the County of Norfolk, lies west of Walsingham and Lake Erie. [On the Lake Erie. Second edition. Many places in England are named Houghton. Three parishes in the County of Norfolk are so called. Hough = hill.]

Howard Township, in the County of Suffolk, lies west of Oxford; it is watered on the north by the Thames, and on the south by Lake Erie. [Howard is the family name of the Dukes of Norfolk.]

Howe Island, in the County of Ontario, lies in the River St. Lawrence, between Wolfe Island and Pittsburgh. [From Admiral Lord Howe, who died in 1799. In the second edition the words "in the County of Ontario," are omitted.]

Humber River, in the East Riding of the County of York, empties itself into Lake Ontario, a little to the westward of the old fort, Toronto. [It was sometimes called St. John's River. Augustus Jones gives as its Otchipway appellation, Co-bec-he-nonk = "leave canoes and go north."]

Humberstone Township, in the County of Lincoln, lies between Bertie and Wainfleet, and fronts Lake Erie. [From Humberstone in the English County of Norfolk, four miles from Grimsby.]

Hungerford Township, in the County of Hastings, lies in the rear and to the northward of the Mohawk tract. [From the name of a market town and parish in Wiltshire.]

Huntingdon Township, in the County of Hastings, lies in the rear and to the northward of Thurlow. [From the county town of Huntingdonshire, or from a hamlet so named near Hereford.]

I.

Industry Point, or Morgan's Point, on the north shore of Lake Erie, west of Sugar Loaf.

Iroquois, Pointe aux, on the River St. Lawrence, six or seven miles above the Rapid Plat, in the township of Matilda.

Ivrogne Point, in the River St. Lawrence, in front of the township of Edwardsburgh, lies a little below Isle du Fort Levi, on the north shore. [Iv. = drunken.]

J.

Jervois, River au, or Knagg's Creek, falls into the Detroit River, near the town of Sandwich.

Joachims, l'Etang des, on the Ottawa River, is below the River de Moine. [Etang = pool.]

John's Island, in the Bay of Quinté, opposite to the Mohawk settlement, west of Richmond. [From the name of a Mohawk chief.]

Johnson Point, on Lake St. Francis, in the township of Charlottenburgh, lies westward of River aux Raisins. [Marked Sir William Johnson's Point in a map engraved by Faden, 1776. Sir W. J. was Superintendent of Indian Affairs for the Province of New York in 1756. He died at Johnson Hall, on the Mohawk River, in 1774. He was the father of Major-Gen. Sir John Johnson, Superintendent-General of Indian Affairs in British North America, after the war of Independence.]

Johnstown, New, in the township of Cornwall, is situated upon the River St. Lawrence, below the Long Sault, to the northward of Grand Isle St. Regis, and is now called Cornwall.

Johnstown, in the township of Edwardsburgh, is situated upon the River St. Lawrence, above the uppermost rapids in ascending to Lake Ontario.

K.

Kamanestigoyan, on the west shore of Lake Superior, now called the Grand Portage. [The name has become familiar to the modern ear as Kaministiquia. Baraga gives it as Gamanetigweiag, and interprets the term to mean a region "where there is a scarcity of rivers," *i.e.* navigable rivers.]

Katabokokonk (or River of Easy Entrance), empties itself into Lake Ontario, in the township of Pickering. [Perhaps Lyons' Creek. An authority in Otchipway says the word properly is Atatabahkookong, and that the meaning is "Grassy Entrance." Was "Easy" a misreading of "Grassy?"]

Kempenfelt's Bay, on the west side of Lake Simcoe. [From the name of the Admiral who perished in the Royal George.]

Kent County comprehends all the country (not being the territory of the Indians), not already included in the several counties herein described, extending northward to the boundary line of Hudson's Bay, including all the territory to the westward and southward of the said line to the utmost extent of the country commonly known by the name of Canada. The boundaries of this county were set forth by Proclamation the 16th July, 1792. It sends two representatives to the Provincial Legislature. [In second edition: Kent County is in the Western District, is bounded by the County of

Middlesex in the London District on the east, by the County of Essex on the west, and by the Lake Erie on the south. It sends, etc.]

Kenyon Township, in the County of Glengary, is in the rear of Charlottenburgh. [From the name of the Chief Justice of the King's Bench in 1788.]

Ketche Sepee, or Great River, now called the Nen. [The Rouge.]

Kettle River, or Rivière à la Chaudiere, rises in a long marsh towards the River Thames, and running southerly, discharges itself into Lake Erie, west of the carrying place, out of the bay of Long Point, having at times five feet and a half water on its bar. This river has sufficient water for boats many miles upwards. Its entrance is only 25 feet wide. [The river by St. Thomas. The Otchipway for kettle is *akik;* for little kettle, *akikons.*]

Kiasan Point, on the south shore of Lake Superior, lies about half way between West Bay and the entrance to the falls of St. Mary, and is situated south-east of Isle Philippeaux. [A misreading of "Kiaoaw." Thus the word appears farther on. It is the modern Keewenaw. Baraga gives the full form, Kakiweonan, and interprets it "a place where they traverse a point of land, walking across a portage."]

King Township, in the East Riding of the County of York, lies to the northward of Vaughan, on the west side of Yonge Street, and opposite to Whitchurch. [From Admiral Sir Richard King, 1792.]

Kingston is in about 44 degrees 8 minutes of north latitude, and 75 degrees 41 minutes of west longitude, is situated at the head of the St. Lawrence, on the north shore, opposite Wolfe Island. It occupies the site of old Fort Frontenac, was laid out in the year 1784, and is now of considerable size. It has a barrack for troops, a house for the commanding officer, an hospital, several storehouses, and an Episcopal Church of the established religion. The ruins of the French works are yet to be seen, as well as that of a breastwork thrown up by General Bradstreet, on the east side of the town. It has an excellent harbour, where the king's shipping on Lake Ontario, for the most part, winter. The brigades of batteaux from Montreal, with stores and provisions, ship them at this place for Niagara. The garrison furnishes a detachment to Carleton Island. The gaol and court house of the Midland District was established at this place by an Act of the Provincial Legislature during the first session. The Courts of the General Quarter Sessions of the Peace are holden here

the second Tuesday in April and October annually. [In the "Memoires sur le Canada, 1749-1760," published in 1873, by the Literary and Historical Society of Quebec, is a lithograph "Vue de Frontenac ou Cataracoui."]

Kingston Township is the fourteenth uppermost township in ascending the River St. Lawrence. It is in the County of Frontenac, and lies partly open to Lake Ontario.

Kitley Township, in the County of Leeds, lies to the eastward of and adjoining to Bastard. [From the name of the family seat of the Bastards, near Yealmpton, in South Devon.]

Killikokin Point, in Sophiasburgh, Bay of Quinté, lies opposite to the Mohawk settlement. [In Baraga occurs Mishwawak-okan, a place where there are *mishwawak*, red cedars. Regarding *Killi* as a dialectic variation for *Kini*, we *may* have here a place where there are *Kiniwag, i.e.* war eagles.]

Knagg's Creek, or River au Jervois: which see.

L.

Lac, Pointe du, the westernmost point as you descend into Lake St. Francis, on the north side of the River St. Lawrence.

Lancaster, the Township of, is in the County of Glengary, on the River St. Lawrence, and the lowest in the provinces adjoining to Lower Canada. [From Lancaster, the ancient county town which gives Lancashire its name.]

Landing, West, now called Queenstown: which see.

Landguard, in Lake Erie, so called by his Excellency the Lieutenant-Governor, 23rd October, 1795, its former name being Pointe aux Pins. This place is in latitude about 42 degree 7 minutes 15 seconds north; variation 2 degrees 48 minutes westerly. There is a pond at the back of the point, the entrance to which has sometimes four feet and a half water on the bar. On the bank of the pond is an old Indian village, from whence there is a good path to the River Thames. There is a great resort of Indians to this place in the spring, induced by the quantity of fish and fowl that may be taken here at that season. This Point is about twenty miles or upwards east of the south Foreland, and bears the only pine timber on this coast. [A fort at Harwich, in Essex, is called Landguard.]

Lansdowne Township, in the County of Leeds, is the eleventh township in ascending the River St. Lawrence. [From the Marquis

of Lansdowne, who, as Earl of Shelburne, was Prime Minister of England in 1782.]

La Tranche (*or la Trenche*), called the Thames by Proclamation the 16th July, 1792.

Leeds County is bounded on the east by the County of Grenville; on the south by the River St. Lawrence; and on the west by the boundary line of the late township of Pittsburgh, running north until it intersects the Ottawa or Grand River, thence descending that river until it meets the north-westernmost boundary of the County of Grenville. The County of Leeds comprehends all the islands in the River St. Lawrence, near to it. The greater part of it lies fronting the St. Lawrence. The boundaries of this county were established by Proclamation, the 16th July, 1792. It sends, in conjunction with the County of Frontenac, one representative to the Provincial Parliament. [In second edition. After "on the west" above: By the boundary lines of Pittsburgh and Bedford. And what is said about the Proclamation of 1792 is omitted.]

Leeds Township, in the County of Leeds, is the twelfth township in ascending the River St. Lawrence. [From the fifth Duke of Leeds, 1751–1799. In the second edition, "See Addington and Lenox County" is added.]

Lenox County is bounded on the east by the County of Addington; on the south and west by the Bay of Quinté, to the easternmost boundary of the Mohawk village; thence by a line running along the westernmost boundary of the township of Richmond, running north 16 degrees west, to the depth of twelve miles, and thence running north 74 degrees east until it meets the north-west boundary of the County of Addington; comprehending all the islands in the bays and nearest the shores thereof. The boundaries of this county were established by Proclamation, the 16th July, 1792. It sends (with the exception af Adolphustown, which is represented with the County of Prince Edward), in conjunction with the Counties of Hastings and Northumberland, one representative to the Provincial Parliament. [This article is removed from the second edition. The name of the county was a compliment to Charles Gordon Lennox, third Duke of Richmond, 1734–1806.]

Lenox, now called the town of Newark: which see. [Not in 2nd Edition.]

Levi, Isle du Fort, in the River St. Lawrence, in front of the

township of Edwardsburgh. On this island are the ruins of a French fortification. [From de Lévis, second in command under Montcalm.]

Lincoln County is divided in four ridings; the first riding is bounded on the west by the County of York; on the south by the Grand River, called the Ouse; thence descending that river until it meets an Indian road leading to the forks of the Chippewa creek (now called the Welland), thence descending that creek until it meets the late township, Number 5, thence north along the said boundary until it intersects Lake Ontario, and thence along the south shore of Lake Ontario until it meets the south-east boundary of the County of York. The second riding is bounded on the west by the first riding; on the north by Lake Ontario; on the east by the River Niagara; and on the south by the northern boundary of the late townships, No. 2, No. 9, and No. 10—[of the Townships of Pelham, Thorold, and Stamford. Second edition.]—The third riding is bounded on the east by the River Niagara; on the south by the Chippewa, or Welland, on the west by the eastern boundary of the first riding; and on the north by the southern boundary of the second riding. The fourth riding is bounded on the east by the River Niagara; on the south by Lake Erie, to the mouth of the Grand River or Ouse, thence up that river to the road leading from the Grand River or Ouse, to the forks of the Chippewa or Welland; and on the north by the said road until it strikes the forks of the Welland, and thence down the Welland to the River Niagara. The fourth riding includes the islands compressed within the easternmost boundaries of the River Niagara. The boundaries of this county were established by Proclamation, the 16th July, 1792. The second and third riding send each one representative to the Provincial Parliament. The first riding sends one, in conjunction with the Counties of Durham and York; and the fourth riding sends one in conjunction with the County of Norfolk. [The name Lincoln may have been a compliment to the ninth Earl of Lincoln, who died in 1794. He was the first Earl who assumed the name of Pelham, in addition to that of Clinton, on his succeeding to the dukedom of Newcastle.]

Little Bay, on Lake Ontario, the westernmost point of which is the boundary between the County of Northumberland and Durham, and between the townships of Hamilton and Hope. [*Big Bay* lay three townships to the west, and was afterwards successively known as Windsor Bay and Port Whitby.]

London, the Township of, is situated in the main fork of the River Thames, in a central situation from the Lakes Erie, Huron, and Ontario. [Here it was at first intended that the capital of the province should be seated. GEORGINA was once thought of as its name, in compliment to George III.]

Long Reach is the communication from Hay Bay to East Bay, in the Bay of Quinté.

Long Beach on Lake Ontario, the westernmost point of which is the boundary between the Counties of Durham and York, and between the townships of Darlington and Whitby.

Lower Landing, or East Landing, on the River Niagara, is opposite to Queenstown, on the Niagara Fort side, [now Lewistown.]

Long Lakes, The, are a chain of small lakes, extending westerly from the Grand Portage of Lake Superior towards Rain Lake.

Long Point, on Lake Erie, now called the North Foreland, is that long beach or sand bank, stretching forth into Lake Erie, from the township of Walsingham, and forming the deep Bay of Long Point. It is upwards of twenty miles long. From the head of the bay there is a carrying place across, over a flat sand, about eight chains distance, into Lake Erie, which sometimes is sufficiently overflown, to be used as a passage for small boats. [The name "North Foreland" has to a great extent dropped out of use. A. Jones gives as the Otchipway name of Long Point Creek, Singua-conses-can-sippi= Small-pine Creek. The large creek west of Long Point, he says, was known as Gan-ce-mon-sippi=Sail Creek. Baraga gives for "Sail," nin-gassi-monan.]

Long Point is the southernmost point of Isle Tonti, running out and making a small bay, opposite to which there is a little island.

Long Saut, isle au, in the River St. Lawrence, and in front of the township of Osnabruck, contains from 1000 to 1500 acres; the soil is good.

Longueil Township, in the County of Glengary, is the second in ascending the Ottawa River. [From the name of a seigniory established here in 1734—New Longueuil; so called to distinguish it from the Old Longueuil, on the south side of the St. Lawrence, just below Montreal, established in 1672.]

Loughborough Township, in the County of Frontenac, lies in the rear, and to the north of Kingston. [From Lord Loughborough, Lord High Chancellor in 1793. His family name was Wedderburn.]

Louth Township, in the County of Lincoln, lies to the west of Grantham, and fronts Lake Ontario. [From the Lord Louth of 1798. The family name is Plunkett.]

Lunenburgh, is now called the Eastern District, by an Act of the Provincial Legislature, in the first session.

Lynn River, in the County of Norfolk, rises in the township of Windham, and running from thence southerly through the township of Woodhouse, empties itself into Lake Erie, where it has about three feet water on the bar: it is a good harbour for batteaux. [Known now as Patterson Creek.]

Lyon's Creek, in the County of Lincoln, discharges itself into Chippewa River, in the township of Willoughby, not far above the mouth of that river. [There is a Lyons' Creek in Whitby.]

M.

Maidstone Township lies between Sandwich and Rochester, upon Lake Erie.

Malden Township, in the County of Essex, is situated at the mouth of Detroit River, on the east side of the strait, having Colchester to the east, and the Huron to the north. [A second title of the Earls of Essex is Viscount Malden.]

Malahide Township is between Yarmouth and Bayham Townships on the Lake Erie. Second edition. [Col. Talbot, founder of the Talbot Settlement, was fourth son of Richard Talbot of Malahide Castle in the County of Dublin, whose wife was created Baroness Talbot of Malahide in 1831.]

Maligne, Grande Pointe, on the River St. Lawrence, is a little above Petite Pointe Maligne, and opposite to the Grand Island of St. Regis.

Maligne, la Petite Pointe, on the north shore of the River St. Lawrence, not far above the lower end of Grand Isle St Regis.

Mamonce and *Little Mamonce*, at the eastern extremity of Lake Superior, between the copper mines and Point aux Rables. [Given as Mamainse by Bayfield. Comp. *Mamansinam* = I see a vision. Baraga.]

Manitoualin, or *Manitou Islands: q. v.* in Lake Huron. [Manitoualin = Place of a spirit.]

Manitou Islands are a number of islands towards the northern shore of Lake Huron, stretching from the vicinity of Cabot's Head

northwesterly across the lake, to lake George, below the Falls of St. Mary.

Marais Grande, lies in the north-east part of the township of Clinton, on Lake Ontario.

Maraudier Point, on the north shore of Lake St. Francis, east of Pointe aux Herbes, in the township of Lancaster.

Markham Township, in the east riding of the County of York, fronts Yonge Street, and lies to the northward of York and Scarborough: here are good mills, and a thriving settlement of Germans. [Perhaps a compliment to Markham, the Archbishop of York of the day.]

Marlborough Township, in the County of Grenville, lies to the northward of Oxford, and is watered by the Rideau.

Marsh Creek runs southerly through the township of Malden, and empties itself into Lake Erie, having at times four feet and a half water on its bar.

Mary's, St. Point, in the River St. Lawrence, is immediately above the Grand Remou. [Remous=eddy.]

Marysburg Township, in the County of Prince Edward, is situated at the eastern end of the peninsula which forms the Bay of Quinté, and lies open to Lake Ontario on the south.

Mataouaschie River runs into the Ottawa River, above the River du Rideau. [Madawaska=Running through rushes.]

Matchedash, or Gloucester, which see. [=Bad land.]

Matilda Township, in the County of Dundas, is the sixth township in ascending the River St. Lawrence. [Compliment to the Princess Royal, Charlotte Augusta Matilda.]

Maurepas Isle, in the northerly part of Lake Superior, lies about half way between Elbow Island and the Bay of Michipicoten. [From the Count de Maurepas, French Secretary of State in 1744. Now Michipicoten Island.]

Mecklenburgh is now called the Midland District, by an Act of the Provincial Legislature, in the first session.

Mersea Township, in the County of Essex, lies on Lake Erie, west of Romney. [From the Isle of Mersea, in Essex.]

Michilimackinack is in about 45 degrees 48 minutes and 34 seconds of north latitude, and is called by the Canadians la Grose Isle. It is situated in the strait which joins Lakes Huron and Michigan. [This name is usually said to mean Great Turtle, from the appearance of

the island as seen at a distance. Baruga says the name is, by the Otchipways, derived from the Mishinimakingo, a kind of people who rove through the woods, and are sometimes heard discharging arrows, but are never seen.]

Midland District was originally erected into a district by the name of the District of Mecklenburgh, in the Province of Quebec, by His Excellency Lord Dorchester's Proclamation of the 24th July, 1788. It received its present name by an Act of the Provincial Legislature; is bounded on the east by a meridian passing through the mouth of the River Gananoqui; on the south by the River St. Lawrence and Lake Ontario; on the west by a meridian passing through the mouth of the River Trent at the head of the Bay of Quinté; and on the north by the Ottawa River. [In the second edition: Is now bounded on the east by a line passing from near the mouth of the River Gananoqui; on the west by Leeds and Crosby townships, and thence to the Allumettes on the Grand River; on the south by the River St. Lawrence and Lake Ontario; and on the west by a line passing through the mouth of the River Trent, at the head of the Bay of Quinté, to the Ottawa River, which river is its northern boundary.]

Middle Island is small, and situated east of Bass Islands, and northerly of Ship Island and Cunningham's Island, in Lake Erie.

Middle Sister, a small island at the west end of Lake Erie, situated between the East Sister and West Sister.

Miliquean Creek, running northerly, discharges itself into the southernmost part of Lake Simcoe, and is now called Holland River. [Minequewin=Drinking-place.]

Milles Isles, les, in the River St. Lawrence, are a group of small islands lying opposite the townships of Leeds and Lansdowne. [The Thousand Islands.]

Milles Roches, Isle au, contains from six to seven hundred acres. The soil is good. It lies partly above and partly parallel to Isle Cheval Ecarté, in the River St. Lawrence.

Minatte, Isle de, on the north coast of Lake Superior, is situated near to, and easterly of, the Grande Portage, extending to Thunder Bay.

Mississaga Island lies opposite the mouth of the River Trent, and about the same distance from the Portage at the head of the Bay of Quinté. [The word signifies Great Outlet, and is applicable to any river-estuary.]

Mississaga Point, in the township of Newark, lies on the west side of the entrance of the River Niagara, and opposite to the fortress of Niagara.

Mississaga River runs into Lake Huron, between le Serpent and Thessalon River, on the north shore. [The bands of Otchipways frequenting the banks of this river constituted the Mississagas proper.]

Michipicoten Bay, in the north-east part of Lake Superior. It is somewhat sheltered southerly and westerly from Lake Superior, by Point Gorgontua and the island of Michipicoten. [The word=Bare Rock or Bluff. Gorgontua, should be Gargantua. The *o*'s express the *patois* pronunciation. Gargantua is the giant of Rabelais' romance, "Gargantua and Pantagruel." Perhaps some fancied resemblance to a giant's head was observed in the rock.]

Michipicoten Isle, in the north-east part of Lake Superior, at the entrance of a bay of the same name. [Called also Maurepas and Hocquart.]

Michipicoten River, running south-westerly, discharges itself into the head of a bay of the same name, in the north-east part of Lake Superior. There is a portage from the sources of this river to another which falls into James's Bay.

Mohawk Bay, in Fredericksburgh, Bay of Quinté, lies opposite to the Mohawk Settlement, and close to the mouth of the River Appannée.

Mohawk Settlement, Bay of Quinté, is west of Richmond, and comprehended between the River Shannon and Bowen's Creek.

Mohawk Village, on the Grand River or Ouse, is the principal village of the Six Nations, in the tract purchased from the Mississaga nation for them by his present Majesty, on account of their loyalty and attachment during the late rebellion, in which they lost their possessions on the Mohawk River. This is the residence of their principal Chief, Captain Joseph Brant. The village is beautifully situated, has a neat church with a steeple, a school house, and a council house; and not far from it is a grist and saw mill. These buildings have, for the most part, been erected by government, who now pay a miller, a schoolmaster, and a blacksmith, for their services at the village; and the Society for Propagating the Gospel make an allowance to a clergyman of the Established Church for occasional visits made to these tribes. The Liturgy of the Church of England has been translated into the Mohawk language, and printed, for the

use of the Six Nation Indians. [Now Brantford. The proper name of the Mohawks was Ganeagas (=The People at the head of men). Mohawk strictly means "the people in *this* direction" or "the hither-people," *i.e.*, with reference to Massachusetts. In like manner "Seneca" meant "the people far off yonder," *i.e.*, towards the Lakes. The proper name of the Senecas was Tsonnontouans.

Moira River runs into the Bay of Quinté, near the south-west angle of the township of Thurlow. [Earl of Moira is a second title of the Marquis of Hastings. From Moira, in the County of Down, Ireland.]

Molla Shannon River runs into the Ottawa River in the township of Hawkesbury. [The names of the Mulla, or Awbeg, a tributary of the Blackwater, in Ireland, and of the Shannon, may be combined.]

Montagne, Portage de, is on the Ottawa river, above lake Chat.

Montagu Township, partly in the County of Grenville, and partly in Leeds, lies to the northward of Walford, and is washed by the river Rideau. [The family name of the Earls of Sandwich.]

Montreal Isle, in the east end of Lake Superior, is small, and situated between the mouths of the river Montreal and Charron, and near to the shore.

Montreal, River de, empties itself into the east end of Lake Superior, a little to the northward of the copper mines, and south of river Charron. [A water-route leading to Montreal. Canada proper was referred to by the Otchipways, Baraga says, as *Monia*, *i.e.*, Montreal.]

Moravian Village, on the river Thames, is in the fourth township from its mouth: it is a regular built village, of one street, with indifferent wooden huts, and a small chapel; inhabited by Indians, converted to the Moravian faith, and their pastors; near to this village are springs of petroleum. [Founded by Count Zinzendorf, the reviver of the society of United Brethren.]

Morgan Point, now called Point Industry. [In Wainfleet, north shore of Lake Erie.]

Morpion Isle, a small island, in the river St. Lawrence, opposite to pointe à la Traverse.

Morpions, Isle aux, in the lake St. Francis, river St. Lawrence, a small rocky island, lying nearly opposite to Pointe Mouillé, in the township of Lancaster. [From insects so-called in French.]

Mouillè Pointe, on Lake St. Francis, west of Pointe au Bodêt, in the township of Lancaster. [Swampy, sunk in the water.]

Moulenet, Isles au, in the River St. Lawrence, opposite the township of Osnabruck, are very small, and the soil tolerably good. [Moulinet=Little Mill.]

Mountain Township, in the County of Dundas, lies in the rear, and to the northward of Matilda. [Perhaps from Mountain, Anglican Bishop of Quebec in 1797.]

Muddy Creek, rises in the township of Pelham, and runs into Chippewa Creek, through the township of Thorold, and the southwest part thereof.

Muddy Lake is situated between Lake Huron and Lake George; it is about twenty-five or thirty miles long, and not very wide; it has several small islands, of which St. Joseph's seems to be the principal.

Murray Township, in the County of Northumberland, lies to the northward of the isthmus which joins the County and Peninsula of Prince Edward to the main. It is washed by the waters of Lake Ontario and the river Trent, as well as by those of the Bay of Quinté. [Probably from Sir James Murray, a distinguished military officer of the first American war.]

N.

Nanticoke Creek, now called the river Waveney, empties itself into Lake Erie, between Long Point and the Grand River. [Nanticokes were Indians so-called. Whence Nanticoke Creek, in the State of New York. Waveney is a river in the English County of Suffolk, falling into the Yare—whence Yarmouth.

Narrows, The, or petite Détroit, in the river St. Lawrence, is between Grenadier Island and the township No. 10, or Escot, now included in Yonge.

Nassau. This is now called the Home District, by an Act of the Provincial Legislature, in their first session of parliament.

Navy Hall, in the township of Newark, is about a mile from the town, on the bank of the river Niagara: the buildings here are considerably increased, and the new garrison building near it, is called Fort George. [Liancourt in his Travels (i. 241) describes Navy Hall as "a small, miserable house, which was formerly occupied by the commissaries, who resided here on account of the navigation of the Lake."]

Navy Island, above the Great Falls in the river Niagara, is situated just above the mouth of the river Welland, and below Grand

Isle. [It was conveniently situated for the building and wintering of vessels.]

Nelson Township, in the west Riding of the County of York, on the Lake Ontario, near Burlington Bay. Second edition. [From Horatio Lord Nelson, from whom also the village of Bronté, in this township, has its name.]

Nen River, in the east riding of the County of York, rises several miles in the rear of York, and running southerly through the township of Markham, parts of Scarborough, and Pickering, empties itself into Lake Ontario, east of the Highlands in Scarborough. [The Nen has lost its English and retained its French name—The Rouge. The Otchipways distinguished it, A. Jones says, as Kitchi-Sippi, The Big River.]

Nepean Township, in the eastern district, is the eighth township in ascending the Ottawa river, and the first township on the west side of the river Rideau. [Probably from Lieut.-Gen. Nicholas Nepean, living in 1793 *et seq.*]

Newark Town is situated on the west side of the entrance of Niagara river, opposite to the fortress of Niagara on Lake Ontario.

This town was laid out in the year 1791, and the buildings commenced upon the arrival of His Excellency Lieut.-Governor Major-General Simcoe, in 1792. It contains now about one hundred and fifty houses. The gaol and court-house for the home district were erected in this place, by an Act of the Provincial Legislature in their first session. The courts of General Quarter Sessions of the Peace are holden here the second Tuesday in January, April, July, and October, annually, by the same authority. The Court of King's Bench sits here. The first Provincial Parliament met at this place, and the public offices of Government have been held *pro tempore* here. Navy Hall, which is situated on the west bank of the river, a little above the town, was the residence of His Excellency the Lieut.-Governor, during his stay at this place; the Council House is about half way between the town and Navy Hall. The public offices are now about moving to York. [From Newark, a borough and market town in Nottinghamshire, having the ruins of a fine castle built in Stephen's reign, and dismantled in the Cromwellian period.]

Newark Township, in the County of Lincoln, lies to the west side of Niagara river, immediately opposite to the fort.

Newcastle. This town plot is situated on the Presqu'isle de Quinté, extending into Lake Ontario, from the easterly part of the township

of Cramahé. [The modern Brighton. A township of Brighton has been formed out of portions of Murray and Cramahé. Probably from Henry Pelham Clinton, fourth Duke of Newcastle, 1796.]

New River, afterwards called the La Tranche, now the Thames, by Proclamation, 16th July, 1792.

Niagara is in about 43 degrees, 15 minutes, and 47 seconds of north latitude, and 78 degrees, 25 minutes of west longitude. [The present town of Niagara lies somewhat west of the long. here given.]

East Niagara, or the Fort, is much out of repair, and West Niagara, or the town of Newark, lies immediately opposite to the Fort. See Newark.

Niagara, Little, or Fort Schlasser, above the Great Falls, on the east side of Niagara river, opposite to the mouth of the river Welland. [Schlasser is a misreading for Schlosser—the name of an officer of engineers. After the portage from the East Landing (Lewiston), merchandize was reshipped at Fort Schlosser.]

Nicholas Island, formerly called Isle de Quinté, *q. v.* [Marked "Nicholson's Island" in later maps.]

Nipegon Lake, lies to the northward of Lake Superior, about half-way between it and Albany River, James' Bay. [Given as Alimipegon in early maps. The word is said to mean "Foul Water," or "Marshy Lake."]

Norfolk County is bounded on the north and east by the County of Lincoln and the river La Tranche (now called the Thames), on the south by Lake Erie, until it meets the Barbue (called the Orwell river), thence by a line running north 16 degrees west, until it intersects the river La Tranche or Thames, and thence up the said river, until it meets the north-western boundary of the County of York. (*Note below.*) The boundaries of this County were established by Proclamation, the 16th July, 1792: it sends, in conjunction with the 4th riding of the County of Lincoln, one representative to the Provincial Parliament. [From the English county of the same name, if not a compliment to the Duke of Norfolk of the day.]

Norman, Marais, in the township of Newark, empties its waters into Lake Ontario, about the centre of the township, west of Niagara Fort, called the Four Mile Pond. [*Norman*, probably from some French voyageur or settler.]

North Channel, in the Bay of Quinté, leads from John's Island, southerly, between the townships of Sophiasburgh, Fredericksburgh, and Adolphustown.

North Channel, between Isle Tonti, in Lake Ontario, and the main land.

Northumberland County is bounded on the east by the County of Hastings, and the carrying-place of the Presqu'isle de Quinté; on the south by Lake Ontario, until it meets the westernmost point of Little Bay; thence by a line running north 16 degrees west, until it meets the southern boundary of a tract of land belonging to the Mississaga Indians, and thence along that tract, parallel to Lake Ontario, until it meets the north-westernmost boundary of the County of Hastings. The County of Northumberland comprehends all the islands near to it, in Lake Ontario, and the Bay of Quinté, and the greater part of it fronts Lake Ontario. The boundaries of this county were established by Proclamation, the 16th July, 1792. It sends, in conjunction with the Counties of Hastings and Lenox, excepting Adolphustown, one representative to the Provincial Parliament.

Norwich, now called the township of Whitby, on the north shore of Lake Ontario: which see.

Norwich Township, in the County of Norfolk, lies to the east of, and adjoining to, Dereham.

O

Oak Point, in the front of the township of Ernest-town, between the King's Mills and Tonagayon Bay. [The King's Mills, back of Kingston. Tonagayon is given as Tonequigon on a map by Faden, 1776: west of Fort Frontenac.

Ontario County consists of the following islands:—An island, at present known by the name of Isle Tonti (called Amherst Island), an island known by the name of Isle au Forêt (called Gage Island), an island known by the name of Grand Isle (called Wolfe Island), and an island known by the name of Isle Couchois (called Howe Island), and comprehends all the islands between the mouth of the Garoqui, to the easternmost extremity of the late township of Marysburgh, called Point Pleasant.

The boundaries of this County were established by Proclamation the 16th of July, 1792. It sends, in conjunction with the County of Addington, one representative to the Provincial Parliament. [In the second edition this article is left out.]

Ontario Fort. See Oswego.

Orford, The Township of, in the County of Suffolk, distinguished sometimes by Orford North and South, is the residence of the Mora-

vians: it is bounded on the south by Lake Erie, and watered by the Thames to the northward. [The Earl of Orford, from 1791 to 1797, was Horace Walpole, who would not use the title.]

Orphan Island, in Lake Ontario, lies off the east shore of Marysburgh, and near to it, in Traverse Bay.

Orwell River (formerly Rivière à la Barbue), rises in a long marsh towards the river Thames, and, running southerly, discharges itself into Lake Erie, between Landguard and the North Foreland, having about two and a-half feet of water on its bar. There is water enough for a loaded boat to go three miles up this river. The land on each side, in many places, consists of large rich flats, adjoining the river, which appear at times to have overflowed, and on the adjacent highlands is a deep black soil. [From the river which flows by Ipswich in Suffolk. It is now better known as Catfish Creek, which is the plain English of Rivière à la Barbue.]

Osgoode Township, in the County of Dundas, is the second township on the east side of the Rideau, in ascending the river. [From the name of the first Chief Justice of Upper Canada, William Osgoode.]

Osnabruck Township, in the County of Stormont, is the fourth township in ascending the River St. Lawrence. [The same as Osnaburg. One of the titles of the Duke of York was "Bishop of Osnaburg."]

Osweigatchie, New, on the north side of the River St. Lawrence, is in the township of Augusta. [Morgan says the signification of the word is lost. The Old Oswegatchie is the present Ogdensburgh.]

Oswego, is in about 43 degrees, 20 minutes of north latitude, and 75 degrees, 43 minutes of west longitude. It has barracks for troops; the works totally decayed, and is situated in the south-eastern angle of Lake Ontario, where the River Oswego falls into that lake. [The complete word was Ochoueguen, which appeared also as Choueguen and Chouaguen. It is said to be an exclamation—"See! a wide prospect." In the "Memoires sur le Canada, 1749-1860," published in 1873 by the Literary and Historical Society of Quebec, there is a lithograph plan of the "Forts Ontario et Pepperell ou Chouaguen." In the same work is also a plan of Old Oswegatchie, under the name of "Fort La Presentation."]

Oswego Creek, Great, in the County of Lincoln, runs into the River Welland, above the little Oswego Creek, near the north-west part of the township of Wainfleet.

Oswego Creek, Little, in the County of Lincoln, runs into the River Welland, below the Great Oswego Creek, near the north-west part of the township of Wainfleet.

Ottawa, or Grand River: *q. v.* [When "Grand River" was applied to the Ottawa, the meaning was *Grande Rivière des Algonquins.* The upper Algonquins were known as "Outawais," *Chéveux rélevées*, a tribe described as being "plus marchands que guerriers." Other forms of "Ontawais" were Outawak and Ondatawawat. On the old maps the Ottawa is the Utawas-river.]

Otter's Head, a remarkable high rock, on the north shore of Lake Superior, west of the River Rouge. [The name continues.]

Oubesaoutegongs Point, in Sophiasburgh, Bay of Quinté, is opposite to the peninsula in Thurlow. [Perhaps "Narrow grassy place."]

Ouentaronk Lake, sometimes called Sinion, or Shiniong, afterwards aux Claies, now Lake Simcoe. [Known also as Toronto Lake. Taronk probably represents this word, from which, as in Niagara and other native terms, syllables both at the beginning and the end have dropped off. Sinion, Shiniong, Ahshaneyong is said to denote "Silver." Claies=Hurdles, or rude frame-work, employed perhaps in the capture of fish.]

Ouse (formerly the Grand River), rises in the country belonging to the Chippewa and Missassaga Indians, and running southerly through the west riding of the County of York, crosses the Dundas Street, and, passing between the Counties of Lincoln and Norfolk, disembogues itself into Lake Erie, about half way between the North Foreland and Fort Erie. The bar, at the mouth of this river, has from seven to nine feet water; it is about a cable and a half's length from the mouth of the river to the middle of the bar. It is navigable many miles up for small vessels, and a considerable distance for boats. About forty miles up this river is the Mohawk village. The Senecas, Onondagos, Cayaugas, Augagas, Delawares, and Missassagas, have also villages in different parts of this river; exclusive of which, there is a numerous straggling settlement of Indians, from the vicinity of the Mohawk village, to within a few miles of the mouth of the river. [A. Jones gives as the name of the Ouse, Oes-shin-ne-gun-ing="It washes the timber down and carries away the grass, weeds, etc."]

Oxford Township, in the County of Grenville, lies in the rear, and to the northward of the townships of Edwardsburgh and Augusta, and is watered by the Rideau. [Spelt Radeau.]

Oxford, Township of, upon Thames, in the Western District, lies to the southward of Dundas Street, where the western end of that road meets the Upper Forks of the River la Tranche, or Thames.

P.

Pais Plat is a point of land on the north shore of Lake Superior, within Isle Grange, and east of River Grange. [Appears as Pays Plat on the present maps.]

Paps, The, two remarkable hills on the top of a high mountain, on the north shore of Lake Superior, a little east of Shanguanoe. [The Paps are marked in Bayfield's chart. They are on the peninsula forming the east side of Black Bay. Southward, in Bayfield, are the Greater and Lesser Shaganash Fisheries.]

Paresseux, Portage des, on the south-westerly branch of the Ottawa River, above les Epingles.

Paterson's Creek, now called the River Lynn.

Patie Island, on the north coast of Lake Superior, near to the west cape of Thunder Bay, and between Meniatte and the Main. [Perhaps the island at present known as Flatland. In that case Meniatte (elsewhere Minatte) would be what is now Pie Island.]

Peach Island, is situated in Lake St. Clair, about seven miles higher up than Detroit, nearly opposite to where the Grand Marais communicates with that lake. It contains from 60 to 100 acres of land, fit for tillage, the other parts being meadow and marsh, are fit for pasture; there is little wood on this island; it is not improved.

Pêches, Rivière aux, runs into Lake St. Clair to the eastward of Peach Island, and westerly of Rivière aux Puces. [Rivière aux Pêches is Peach River.]

Pelè Point (or *Point au Plé*), now called the South Foreland, extending into Lake Erie, between Landguard and the mouth of Detroit River, is noted for its being a good place to winter cattle at, on account of the rushes which abound there. [Bald Point.]

Pelham Township, in the County of Lincoln, lies to the south of Louth, and is watered by the Chippewa, or Welland. [From a family name of the Earls of Lincoln.]

Pemetescoutiang, called Smith's Creeh, on Lake Ontario, in Hope. This is the same as A. Jones' Pam-me-sco-ti-onk=High burnt Plains.]

Perch Cove, in Adolphus-town, Bay of Quinté, lies south of Bass Cove.

Perches et Cave, Rapids de, on the south-westerly branch of the Ottawa River, immediately above the Portage des Paresseux. [On Arrowsmith's early map, a "Hole Portage" is marked: Perches et Cave = Poles and hole.]

Percy Township, in the County of Northumberland, lies to the rear, and north of Cramahé.

Père, Pointe au, on the north shore of Lake Superior, east of Pointe aux Tourtes, and opposite to Isle de Minatte. [Father-point. Priest-point. Tourte = pie, tart.]

Peter's, St. Bay, on Lake Ontario, in Marysburgh, lies a little to the eastward and southward of Little Sandy Bay.

Pilkington Island, in Lake Simcoe, parallel to Darling Island. [From the name of an officer of the Engineers at Niagara in 1794.]

Petite Isle aux d'Indes, called Turkey Island.

Philipeaux Isle, in the south-west of Lake Superior, lies to the southward of Isle Royal, and between it and Kiacan Point, on the south shore. [Isle Philipeaux lies to the northward of Isle Royale in Arrowsmith's early map.]

Pic, Rivière au, empties itself into Lake Superior on the north side, west of Beaver Creek: on this river dwell many Indians, called by other nations, "the men of the land." ["Many Indian tribes bear names which in their dialect signify *men*, indicating that the character belongs *par excellence* to them. Sometimes the word was used by itself, and sometimes an adjective was joined with it, as *original men, men surpassing all others*."—Parkman. Lenni-lena-pe, and Illinois are examples. The latter word is said to be thus derived: Eriniwek, Liniwek, Aliniwek, Iliniwek, Illinois.]

Pickering Township, in the east riding of the County of York; is situated between Whitby and Scarborough, and fronts Lake Ontario. The River Nen runs into Lake Ontario through this township. [From the name of a market-town and parish in the north riding of Yorkshire.]

Pigeon Bay, on the north shore of Lake Ontario, lies between the Highlands of Scarborough and River Shannon. [On Arrowsmith's early map the only name given on the north shore of Lake Ontario between Toronto and the Bay of Quinté is that of Pigeon Bay. Perhaps Frenchman's Bay was intended. Is "Shannon" a slip for "Trent?"]

Pin, Portage du, on the south-west branch of the Ottawa River, between Portage de la Tortue and Portage des Talons.

Pins, Pointe aux, now called Landguard (by order of His Excellency the Lieutenant-Governor, 23rd October, 1795), Lake Erie.

Pins, Pointe aux, or Fort Gloucester, Lake Superior.

Pins, Pointe aux, on the River St Lawrence, is in front of the township of Matilda, below Point Iroquois.

Pittsburgh Township, in the County of Frontenac, is the thirteenth township in ascending the River St. Lawrence. [Perhaps from Pittsburgh on the Ohio, built on the site of Fort Pitt, previously Fort du Quesne, and named after the elder Pitt.]

Plantagenet Township lies partly in the County of Glengary, and partly in Stormont: it is the fourth township in ascending the Ottawa River. [From one of the family names of the Duke of Buckingham.]

Pleasant Pointe, the easternmost extremity of the township of Marysburgh, at the entrance of the Bay of Quinté.

Pluie, Lac la, lies between Sturgeon Lake and Lake Dubois, and to the eastward of the latter. See Rain Lake. [The native name of this lake is given as Tecamamionen. Lac Dubois is Lake of the Woods.]

Pluie, Rivière la, runs from Lac la Pluie westward, into Lac Dubois.

Portage, le Grand, on Lake Superior, leads from the north-west of that lake to a chain of smaller lakes, on the communication to the north-western trading ports.

Portage de plein Champ, on the south-westerly branch of the Ottawa River, above the main forks.

Portland Township, in the County of Frontenac, lies west of Loughborough, and north of Kingston. [A compliment to the Duke of Portland of the day.]

Pottohawk Point, in the bay of Long Point, lies opposite to Turkey Point. [On Lake Erie.]

Presentation Fort, or *Oswegatchie,* on the south side of the River St. Lawrence, about Point Gallo. [Fort *La Presentation* originated in the Abbé Picquet's Mission establishment of the same name. He was an active French agent among the Iroquois. The Marquis du Quesne used to say that the Abbé was as good as ten regiments on the French king's side.]

[*Prescott County,* in the Eastern District, is bounded by Monsieur Longueil's, Seigniory on the east, by the Counties of Glengary and

Stormont on the south, by the County of Russell on the west, and on the north by the river Ottawa, or Grand River. Second edition. (From Gen. Prescott, who succeeded Lord Dorchester as Governor-General of Canada, in 1796.)]

Presqu'isle Major, of the St. Lawrence, is in front of the township of Matilda, above Point Iroquois.

Presqu'isle, in the River St. Lawrence, is in Edwardsburgh, nearly opposite to Hospital Island, and above Pointe au Gallope.

Presqu'isle de Quinté. See Newcastle.

Presse Matouan, at the Forks of the Ottawa River, the northerly branch leading from the Lake Temiscaming, the south-west branch from the portage to Lake Nipissing: this is sometimes called the Upper or Main Fork.

Priest's Island, in the River St. Lawrence, above Point Gallo.

Prince Edward Bay, on the east shore of Marysburgh, is made by Cape Vezey to the north, and Point Traverse to the south, in Lake Ontario. [A compliment to the third son of George III., afterwards Duke of Kent, and father of the Queen Victoria.]

Prince Edward County is bounded on the south by Lake Ontario; on the west by the carrying place on the isthmus of the Presqu'isle de Quinté; on the north by the Bay of Quinté; and on the east, from Point Pleasant to Point Traverse, by its several shores and bays, including the late townships of Ameliasburgh, Sophiasburgh, and Marysburgh. The County of Prince Edward comprehends all the islands in Lake Ontario, and the Bay of Quinté near to it. The boundaries of this county were established by proclamation the 16th of July, 1792. It sends, in conjunction with Adolphustown, in the County of Lenox, one representative to the Provincial Parliament.

Prince William's Island, on Lake Huron (formerly called Isle Traverse), in Gloucester Bay. [A compliment to the king's son, afterwards William IV.]

Puces, Rivière aux, runs into Lake St. Clair, to the eastward of Peches River. [Puces, inserts so named in French.]

Q.

Queenstown is situated upon the Niagara River, about seven miles above Newark. It is at the head of the navigation for ships, and the portage, occasioned by the Falls of Niagara, commences here. There are huts enough here to receive a regiment. [A compliment

to Queen Charlotte, to balance "Kingston" at the east end of the Lake.]

Quinté, Isle de, in Lake Ontario, lies close off the shore of Ameliasburgh, and opposite the west point that makes Sandy Bay. [This appears to be the present Nicholson's Island.]

Quinté Lake was an ancient name of the Rice Lake. It is the nearest lake to the head of the Bay of Quinté, which receives its waters by the River Trent. [Rice Lake is marked "Quentio" in J. Rocque's map, of 1761. The name that has now become fixed and familiar as Quinté, appears in early documents or maps as Kanté, Kanta, Keenthee, Keinthée, Kenthe, Kentey, Kenti, Kento, and Quintay, representing, as in so many other instances, the efforts of different Europeans to reduce to writing sounds caught from the lips of aborigines. It seems to have indicated the name of a band of natives, a detachment from the Iroquois side of Lake Ontario. One early reporter says that Kenthé means "field."]

R.

Rables, Isles aux, several small islands at the entrance of Lake Superior, and at the east end thereof, east of White Fish Island, and pretty close to the main land. [Properly *Isles aux Erables*, Maple Islands. A "Maple Island" is still marked in this quarter on maps.]

Rables, Pointe aux, in the Lake Superior, opposite to Isle aux Rables, the first point to the northward after you enter the lake from the Falls of St. Mary.

Raby Head, on the north shore of Lake Ontario, in the township of Darlington. [From Raby Head, in the English County of Durham, bearing Raby Castle, a seat of the Earl of Darlington.]

Rain Lake lies to the westward of the chain of long lakes in the vicinity of the grand portage of Lake Superior. The waters of this lake are supplied from sources near to the westernmost part of Lake Superior, but are carried by a circuitous route into Hudson's Bay. [Lac La Pluie.]

Rainham Township, in the County of Norfolk, is the first township fronting on Lake Erie, west of the Grand River lands. [In the County of Norfolk, England, are the parishes of East, West, and South Rainham.]

Raisin Isles, in Lake St. Francis, lie between the mouth of the River aux Raisins and the point of that name. They are small and rocky. [Grape Islands.]

Raisin, Pointe, in the Lake St. Francis, lies to the east of Pointe au Lac.

Raisins, Rivière aux, runs through the townships of Osnabruck and Cornwall; the Indian land, opposite to St. Regis, and the township of Charlottenburgh, emptying itself into Lake St. Francis, near the south-east angle of the latter township.

Raleigh Township, in the County of Essex, lies west of Harwich; the Thames bounding it to the north, and Lake Erie to the southward. [From a well-known Devonshire family name, made illustrious by Sir Walter Raleigh.]

Rapid Plat, Isle au, in the River St. Lawrence, in front of the township of Matilda, contains about 200 acres. The soil is good, and lies partly in front of the township of Williamsburgh also. [The island retains this name on Bouchette's map. Plat=smooth.]

Rawdon Township, in the County of Hastings, lies in the rear and north of Sidney. [From a title of the second Earl of Moira, who was also Earl of Rawdon and Marquis of Hastings, "a gallant soldier, an eloquent senator, and a popular statesman."]

Red River, on the north-east shore of Lake Superior, runs into that lake a little more to the northward than Isle Beauharnois.

Regis, St., is nearly on the 45th parallel of north latitude, and a considerable village of Indians converted to the Roman Catholic faith, situated on the south shore of the River St. Lawrence, above Lake St. Francis. [From the name of Jean François Regis, a Jesuit, canonized June 16, 1737.]

Remou, Grand, third township, River St. Lawrence. Lies between the Isle de trois Chenaux Écartées and the main land, about 44 degrees 50 minutes north latitude. [Remous=eddy. Chenaux Écartées=disused channels.]

Retreat, Pointe, in Marysburgh, is near the head of Traverse Bay, behind the north end of the westernmost island, above Orphan Island.

Rice Lake, in the Home District [second ed., Newcastle District], from whence there is a portage of eleven miles to Lake Ontario. It discharges itself by the River Trent into the head of the Bay of Quinté. [The Otchipway word for wild rice is *manomin*. Rice Lake was sometimes called Lake of the Kentés or Quinties, an Iroquois band mentioned above.]

Richmond Township, in the County of Lenox, lies north of Fredericksburgh, in the Bay of Quinté, and is watered in front by the

River Appannée. [A compliment to the Duke of Richmond, before his nomination to the Governorship of Canada. Appannée is the present Napanee.]

Rideau River is in the eastern district, and, running somewhat parallel to the River Petite Nation, empties itself into the Grand, or Ottawa river, about three miles higher up. The land on each side of this river is very good for settlements. [The name of the River Rideau seems to have given great trouble to the surveyors and others ignorant of French. In Stegmann's correspondence with D. W. Smith, Surveyor-General, it figures as Radeaux, Radeau, and Readeau. Here is one of Stegmann's letters: "Johnstown, 8th Jan., 1796. Sir: I was duly honoured with the receival of your letters dated 6th, 10th, and 22nd November last, and send by the bearer, Mr. Elias Jones, the requested reports of the reserved lands, for Government and the Clergy, of the different townships on the *River Readeau;* likewise a report of Masting and other Timber fit for the Royal Navy in the township of Wolford; as there is none within my knowledge in any the other townships which were surveyed by me, except a very few trees in front of the river, of several lots, and scarcely any pine timber fit for this use."]

Rideau, Petite Rivière, runs into the Ottawa river, in the township of Hawkesbury, above the river Mullashannon.

Roche, Capitaine, Portage, is on the Ottawa river, above rivière du Moine.

Rochers, Pointe aux, in Mons. de Longueil's Seigniory, on the south side of the Ottawa river, lies between Pointe à la Runial and Rivière au Attica.

Rochester Township, lies on Lake St. Clair, between Tilbury and Maidstone. [From the ancient city of Rochester on the Medway in Kent; the Roman *Durobrivæ.* Rochester, in the State of New York, is from a family name common in its neighbourhood.]

Rock Point, on the north shore of Lake Ontario, is to the eastward of Pointe aux Cheveaux.

Rocky Island, in the river Detroit, lies on the east side of Grosse Isle, and close to it: this island is a rock, the stone of which is valuable for building and for lime. The rock is in strata lying pretty regular. There is no wood on this island.

Rocky Point, in Muddy Lake; the great point north of Caribou Island on the main.

Romney Township, in the County of Essex, lies south of Tilbury, on Lake Erie, near the South Foreland. [From a borough and market town in Kent, situate on a hill, in the midst of "Romney Marsh," 50,000 acres of rich land defended from the encroachment of the sea by an embankment or wall three miles in length, twenty feet high, twenty feet broad at the top, three hundred feet broad at the base.]

Rose, Portage à la, on the south-western branch of the Ottawa river, above the upper Main Fork, and higher than Portage de Plein Champ.

Rouge River, on the north side of Lake Superior, discharges itself into that lake, west of Pointe au Calumet. [There are several other rivers of this name.]

Roxburgh Township, in the County of Stormont, lies in the rear of Cornwall. [From John, third Duke of Roxburgh, the famous book collector, who died in 1804.]

Royal, Isle,, in the south-west of Lake Superior, lies to the north of Isle Philippeaux, north-east of West Bay, and south of the Grand Portage: it is about 100 miles long and 40 broad.

Runial, Pointe à la, on the south side of the Ottawa River, lies between Mons. de Longueil's Seigniory and the second township, now added to Hawkesbury.

Ruscom River falls into Lake St. Clair, between Pointe aux Roches and Belle River. A loaded boat may go six miles up this river; the land is exceedingly good on its banks: there is a settlement of Indians a few miles up it. [From Ruscomb, a village in Berkshire.]

Russell Township, in the County of Leeds, lies to the northward of Kitley. [From Peter Russell, afterwards President of Upper Canada.]

(To be concluded in the next Journal.)

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—MARCH, 1875.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above aver'ge	Tension of Vapour.				Humidity of Air.				Direction of Wind.				Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	MEAN.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN		
1	29.759	29.411	29.321	29.4758	11.3°	17.4°	10.2°	12.98°	—12.58°	.062	.089	.062	.072	86	94	92	92	E	E	N	N 68° E	25.0	23.0	14.0	17.30	19.52	...	8.0
2	.528	.768	.960	.7753	8.0	16.3	6.2	10.18	—15.62	.059	.070	.052	.061	96	78	90	88	N W	N W	N	N 40 W	10.0	11.2	7.8	8.80	9.65	...	...
3	.952	.637	.670	.7563	0.8	18.5	17.4	12.67	—13.35	.037	.085	.096	.074	85	84	100	91	N	E	N E	N 51 E	11.2	21.5	11.6	11.70	13.63	...	8.0
4	.854	.980	.963	.9463	13.8	23.2	19.2	18.87	— 7.38	.075	.090	.088	.085	93	72	85	84	N	N	E	N 33 E	8.8	4.5	10.2	4.80	6.46	...	2.1
5	.832	.701	.559	.6840	20.0	26.8	25.4	24.83	— 1.68	.100	.122	.132	.124	92	84	96	91	E	E	E	S 81 E	13.8	9.4	7.6	9.74	9.98	...	4.0
6	.454	.612	.745	.6173	31.5	31.5	24.6	27.58	+ 0.82	.174	.119	.120	.128	98	67	91	84	S W	W	N W	N 87 W	3.0	14.7	5.0	6.53	8.44	...	0.1
7	.700	.540	.540	.5897	21.0	29.0	22.5	24.00	— 3.02	—	—	—	—	—	—	—	—	N	N E	N	N 21 E	6.2	6.5	3.5	4.13	5.29	...	...
8	.655	.761	.779	.7365	18.1	29.3	19.2	21.60	— 5.70	.089	.144	.089	.101	90	89	86	86	N	N W	W	N 6 W	10.0	4.2	1.0	5.54	6.09	...	...
9	.740	.613	.481	.5980	4.8	27.2	27.2	21.17	— 6.38	.046	.118	.139	.107	85	80	94	88	Calm.	E	N E	N 78 E	0.0	6.8	5.7	3.54	3.66	...	0.1
10	.409	.414	.514	.4593	26.8	32.2	29.3	29.45	+ 1.58	.137	.162	.136	.140	94	89	84	86	S W	W	S W	S 76 W	5.2	13.8	4.5	4.97	5.46	...	0.8
11	.601	.545	.235	.4537	20.7	31.9	34.4	29.47	+ 1.33	.093	.156	.191	.146	83	83	96	86	Calm.	S	S	S 24 E	0.0	8.9	3.2	3.45	5.00	...	0.6
12	.478	.675	.728	.6417	31.9	33.7	26.1	30.75	+ 2.28	.173	.122	.116	.140	96	62	82	81	W	W	W	N 86 W	14.5	7.8	4.0	8.01	8.65	0.030	...
13	.575	.579	.666	.6078	27.2	32.9	26.5	29.47	+ 0.70	.132	.147	.126	.139	89	78	88	85	E	E	Calm.	N 67 E	10.8	6.8	0.0	5.87	5.95	...	...
14	.550	.390	.330	.4080	26.8	38.0	36.5	33.43	+ 4.34	—	—	—	—	—	—	—	—	N E	N E	E	N 52 E	13.8	8.0	10.1	9.74	9.91	...	...
15	.213	28.979	28.905	.0422	35.5	36.2	39.1	36.80	+ 7.38	.202	.210	.238	.213	97	98	100	97	N E	N E	W	N 58 E	14.5	13.6	19.0	8.19	11.73	.720	...
16	.137	29.130	29.236	.1688	32.6	34.8	20.7	28.93	— 0.82	.165	.146	.085	.123	89	70	77	75	S W	S W	W	S 60 W	18.7	16.2	7.0	15.62	16.75	...	0.3
17	.261	.400	.631	.4497	14.2	16.7	9.1	13.35	—16.73	.070	.042	.052	.055	84	45	82	70	W	W	N W	N 89 W	14.4	25.5	18.8	19.15	20.00	...	...
18	.779	.934	.937	.8920	3.0	13.8	9.5	8.70	—21.73	.043	.057	.053	.053	89	71	80	83	W	W	Calm.	N 78 W	18.0	18.0	0.0	15.39	15.45	...	...
19	.980	.962	.827	.9087	5.5	12.7	14.9	11.42	—19.35	.049	.053	.056	.053	88	67	66	73	N	N	N	N 4 W	7.0	6.5	7.9	6.44	6.90	...	...
20	.611	.533	.612	.5843	12.0	17.8	15.6	14.97	—16.15	.065	.080	.073	.073	88	82	83	85	N E	N E	N E	N 35 E	15.6	14.4	6.1	12.20	12.25	...	5.0
21	.780	.789	.837	.8138	9.1	17.4	12.4	13.03	—18.44	—	—	—	—	—	—	—	—	N	N W	N W	N 13 W	10.8	10.5	12.5	10.66	11.27	...	...
22	.918	.955	.998	.9683	5.9	20.0	12.7	13.62	—18.22	.047	.041	.041	.045	83	39	52	57	N W	N W	N W	N 32 W	10.0	16.6	8.6	11.61	11.68	...	...
23	30.038	.965	.720	.8902	3.7	24.6	23.2	18.52	—13.67	.047	.074	.102	.074	91	56	83	71	N	S	E	N 84 E	6.6	3.2	11.7	4.73	7.17	...	...
24	29.354	.445	.647	.4898	31.9	34.4	23.9	29.95	— 2.62	.180	.144	.095	.139	100	72	73	81	S	N W	W	N 84 W	13.0	19.0	13.6	10.07	14.86	...	1.0
25	.784	.898	.872	.8595	21.8	30.8	28.6	27.78	— 5.15	.099	.106	.122	.111	85	62	78	74	N W	W	S W	N 77 W	17.3	6.6	7.0	9.46	10.70	...	...
26	.600	.310	.400	.4200	29.5	40.0	36.5	35.57	+ 2.26	—	—	—	—	—	—	—	—	S E	S W	S W	S 27 W	9.0	7.8	9.6	4.86	7.32	.180	...
27	.438	.574	.786	.6275	31.9	37.6	26.8	31.95	— 1.73	.158	.100	.086	.114	87	44	60	63	S W	W	N W	N 79 W	9.2	22.4	17.0	13.35	14.37	...	...
28	30.000	30.000	.950	.9333	15.5	30.0	24.0	23.13	—10.93	—	—	—	—	—	—	—	—	N W	S W	E	N 35 W	3.5	1.2	0.5	1.71	2.93	..	...
29	29.915	29.898	.910	.9077	22.8	36.2	31.9	31.27	— 3.18	.099	.159	.143	.141	82	74	79	80	N E	E	Calm.	N 67 E	2.4	3.0	0.0	2.09	2.40	...	...
30	.949	.880	.827	.8827	29.7	44.8	40.5	39.50	+ 4.68	.154	.188	.196	.187	93	63	78	77	Calm.	E	N E	N 70 E	0.0	5.2	4.4	2.96	3.12	...	...
31	.888	.784	.709	.7830	36.2	47.0	38.5	41.55	+ 6.37	.193	.227	.202	.210	90	70	88	81	N E	N E	Calm.	N 64 E	4.0	9.3	0.0	4.62	4.80	...	...
	29.6687	29.6472	29.6556	29.6587	19.47	28.47	23.62	24.08	— 5.89	.106	.117	.111	.112	90	72	83	81	...	...	...	...	9.88	11.16	7.48	...	9.40	0.930	30.0

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MARCH, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer ..... 30.050 at 8 a.m. on 23rd. } Monthly range
Lowest Barometer ..... 28.905 at 10 p.m. on 15th. } 1.145.

Self-registering Ther.
- Maximum temperature ..... 51°5 on 31st. } Monthly range
- Minimum temperature ..... —1°5 on 3rd. } 53°0.
- Mean maximum temperature ..... 30°81. } Mean daily range
- Mean minimum temperature ..... 15°43. } 15°38.
- Greatest daily range ..... 33°0 from a.m. of 23rd to a.m. of 24th.
- Least daily range ..... 5°8 from a.m. to p.m. of 15th.

Warmest day ..... 31st; mean temperature ..... 41°55 }
Coldest day ..... 18th; mean temperature ..... 8°70 } Difference=32°85.

Maximum Solar ..... 130°5 on 4th. } Monthly range
Radiation Terrestrial ..... —14°0 on 3rd. } 144.5.

Aurora observed on 1 night, viz., 2nd.
Possible to see Aurora on 18 nights; impossible on 13 nights.
Snowing on 11 days; depth 30.0 inches; duration of fall 90.7 hours.
Raining on 3 days; depth, 0.930 inches; duration of fall 14.0 hours.
Mean of cloudiness, 0.63.

WIND.

Resultant direction N. 23° W.; resultant velocity 2.80 miles.
Mean velocity 9.40 miles per hour.
Maximum velocity 30.0 miles, from 1 to 2 p.m. of 17th.
Most windy day 17th; mean velocity 20.00 miles per hour.
Least windy day 29th; mean velocity 2.40 miles per hour.
Most windy hour noon; mean velocity 12.71 miles per hour.
Least windy hour 8 p.m.; mean velocity 7.07 miles per hour.

Solar haloes on 18th, 23rd, 29th and 30th; Lunar haloes on 13th and 18th.
Fog on 9th, 13th and 15th.
Lightning on 14th.
First Thunder Storm on 15th.
30th, Robins numerous—first seen on 12th; Crows on 15th: Song Sparrow, 30th.

COMPARATIVE TABLE FOR MARCH.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'	Mean Velocity.
	°	°	°	°	°					°		
1847	26.2	—3.1	43.9	5.6	38.3	5	0.850	6	4.2	...	...	0.71 lbs
1848	28.6	—0.7	58.6	0.0	58.6	5	1.220	6	9.7	N 66 W	2.03	5.80 mls
1849	33.5	+4.2	53.0	15.1	37.9	7	1.525	2	2.3	N 3 W	1.48	5.37
1850	29.8	+0.5	46.5	7.2	39.3	2	0.745	7	11.2	N 52 W	2.62	7.62
1851	32.4	+3.1	59.3	12.0	47.3	3	0.770	9	8.8	N 21 W	1.93	7.65
1852	27.7	—1.6	44.8	— 7.4	52.2	8	3.080	12	19.5	N 8 W	0.71	5.81
1853	30.6	+1.3	56.3	0.0	56.3	6	1.080	8	7.1	N 58 W	2.60	5.96
1854	30.7	+1.4	55.1	7.4	47.7	9	2.425	3	2.8	N 53 W	3.39	8.03
1855	28.5	—1.2	49.4	— 2.9	52.3	5	1.485	11	18.1	N 88 W	4.76	9.95
1856	23.1	—6.2	41.4	—14.0	55.4	0	0.000	12	16.2	N 71 W	7.68	11.39
1857	27.8	—1.5	57.6	— 5.5	63.1	4	0.335	15	11.3	N 63 W	6.63	10.84
1858	28.4	—0.9	55.4	— 5.5	60.9	10	0.917	6	0.2	N 58 W	5.45	8.56
1859	36.3	+7.0	54.2	9.8	44.4	15	4.054	8	1.0	N 64 W	1.96	10.39
1860	34.5	+5.2	67.0	12.8	54.2	5	0.882	11	2.4	N 64 W	7.61	12.41
1861	26.9	—2.4	47.4	— 5.2	52.6	8	2.125	14	7.1	N 54 W	4.33	10.56
1862	28.8	—0.5	43.2	8.0	35.2	8	2.500	11	18.5	N 12 W	2.50	9.38
1863	25.8	—3.5	42.2	— 4.0	46.2	4	0.687	17	11.4	N 27 W	2.62	9.27
1864	29.1	—0.2	50.2	3.0	47.2	9	1.620	12	3.7	N 53 W	2.29	8.41
1865	33.6	+4.3	55.6	— 3.5	59.1	10	3.050	12	18.9	N 61 W	2.16	8.80
1866	27.6	—1.7	45.8	7.5	38.3	8	1.915	18	7.2	N 73 W	6.84	11.51
1867	26.6	—2.7	46.8	3.0	43.8	6	0.617	14	33.4	N 34 W	2.12	8.52
1868	31.3	+2.0	59.0	—15.6	74.6	7	2.660	5	4.2	N 21 W	2.12	8.58
1869	23.1	—6.2	46.8	— 5.4	52.2	3	0.985	9	15.0	N 52 W	2.86	8.02
1870	26.3	—3.0	44.0	5.2	38.8	2	0.755	18	62.4	N 18 E	4.73	10.13
1871	34.7	+5.4	58.5	17.0	41.5	8	0.782	12	13.0	N 31 W	2.59	8.31
1872	19.9	—9.4	46.4	—10.8	57.2	2	0.700	14	16.3	N 66 W	5.36	10.48
1873	26.6	—2.7	45.0	— 6.0	51.0	5	1.756	15	25.2	N 61 W	5.91	11.47
1874	28.7	—0.6	57.0	5.5	51.5	10	1.390	10	2.6	N 65 W	7.47	13.24
1875	24.1	—5.2	51.5	— 1.5	53.0	3	0.930	11	30.0	N 23 W	2.80	9.40
Res'lts to 1874.	29.28	...	51.09	1.19	49.90	6.14	1.588	10.26	12.45	N.52.W	3.47	9.13
Excess for '75.	— 5.20	...	+ 0.41	— 2.69	+ 3.10	— 3.14	— 0.658	+ 0.74	+ 17.55	...	...	+ 0.27

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—APRIL, 1875.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 P.M.	MEAN	Excess of Mean above Normal.	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Humidity of Air. 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	Velocity of the Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN	Rain in inches.	Snow in inches.
1	29.686	29.583	29.619	29.6262	40.9°	46.6°	43.0°	44.05°	+ 8.45°	.228	.269	.266	.257	89	85	96	89	E	S	W	S 14° W	1.8	4.8	6.8	1.43	4.67	0.180	...
2	.682	.698	.712	.7017	36.6	39.1	34.4	37.00	+ 1.02	.130	.127	.158	.140	59	52	79	63	W	W	W	S 84 W	10.0	7.8	0.0	5.63	5.67	...	0.1
3	.675	.615	.640	.6405	30.4	47.5	34.8	37.70	+ 1.33	.168	.186	.161	.170	99	56	80	77	Calm.	S W	N E	S 7 E	0.0	4.1	3.0	1.70	2.50	...	0.3
4	.642	.680	.800	.7273	35.0	51.0	40.5	42.25	+ 5.51	—	—	—	—	—	—	—	—	E	S W	N W	N 14 W	4.0	3.0	18.0	4.75	7.82	Inap.	...
5	.997	30.079	30.048	30.0487	36.6	47.7	34.4	40.58	+ 3.45	.188	.186	.158	.182	86	55	79	72	N	N	N W	N 5 W	13.2	6.0	0.0	7.30	8.26	...	...
6	30.019	29.918	29.896	29.9388	33.3	35.8	34.4	34.62	— 2.88	.142	.121	.093	.113	74	57	47	57	N E	N E	N E	N 59 E	14.2	19.4	8.0	13.06	13.19	Inap.	...
7	29.959	.950	.886	.9253	31.1	36.2	39.4	35.52	— 2.38	.153	.150	.193	.163	87	71	80	78	N E	E	E	N 74 E	10.8	14.6	11.2	11.26	11.57	.010	...
8	.753	.674	.686	.7013	35.5	42.3	37.3	39.20	+ 0.92	.170	.202	.153	.183	80	74	69	76	E	E	E	N 89 E	5.0	12.5	10.0	9.78	10.28	...	...
9	.551	.515	.565	.5425	36.9	46.7	45.2	42.68	+ 4.02	.184	.227	.182	.196	84	71	60	72	N E	S	W	N 80 E	14.5	2.5	11.2	4.59	9.85	Inap.	...
10	.618	.561	.626	.5977	34.0	58.9	43.4	45.70	+ 6.67	.156	.217	.133	.165	78	44	46	56	W	W	N W	N 81 W	4.0	22.5	12.5	6.65	9.50	...	...
11	.630	.542	.569	.5770	41.0	48.5	40.2	43.02	+ 3.60	—	—	—	—	—	—	—	—	N W	E	N E	N 72 E	5.3	12.0	11.0	5.98	7.88	...	...
12	.526	.513	.463	.4915	37.3	40.5	37.6	38.10	— 1.70	.120	.170	.175	.156	53	67	77	68	E	E	N W	N 55 E	12.8	10.0	6.0	8.56	10.15	Inap.	...
13	.365	.384	.489	.4213	37.3	35.1	34.0	35.17	— 5.02	.179	.190	.171	.178	80	92	88	87	E	N E	W	N 47 E	10.0	13.7	0.5	7.31	8.17	Inap.	...
14	.525	.475	.442	.4753	35.5	47.7	36.6	40.10	— 0.47	.193	.233	.188	.205	93	70	86	82	W	S	W	S 33 W	0.1	8.3	2.5	3.24	4.22	...	...
15	.334	.137	28.987	.1518	33.7	47.7	37.6	39.32	— 1.62	.167	.186	.157	.174	86	55	69	72	S W	S	S W	S 28 W	1.3	13.2	23.0	8.80	10.29	.210	...
16	.207	.312	29.404	.3187	24.3	27.2	20.3	23.40	—17.92	.097	.078	.078	.082	74	52	70	66	W	W	W	S 84 W	14.5	16.0	8.0	13.72	13.94	...	0.1
17	.356	.423	.481	.4272	15.6	24.6	15.3	18.87	—22.83	.072	.086	.071	.074	82	65	80	72	W	S W	N W	S 87 W	9.4	10.6	2.5	7.75	8.81	...	0.1
18	.510	.517	.527	.5208	12.5	26.1	23.9	21.18	—20.87	—	—	—	—	—	—	—	—	N W	W	W	N 82 W	7.2	11.0	10.0	9.32	9.32	...	...
19	.493	.440	.513	.4860	22.8	35.5	25.7	29.20	—13.23	.094	.124	.101	.111	77	60	72	69	W	N W	N W	N 57 W	9.5	20.0	9.7	10.01	11.83	...	0.3
20	.615	.697	.751	.6977	25.0	29.0	25.0	26.02	—16.80	.102	.090	.102	.091	76	56	76	64	N W	N W	N	N 50 W	11.5	24.9	15.8	17.27	17.74	...	Inap.
21	.769	.741	.779	.7695	20.3	28.3	28.6	25.73	—17.45	.083	.078	.088	.080	77	50	56	58	N W	N W	N	N 29 W	20.0	23.2	15.4	18.72	18.76	...	...
22	.807	.730	.678	.7328	26.1	39.4	32.2	32.98	—10.57	.090	.117	.139	.117	64	49	76	63	N	N W	N W	N 30 W	13.6	13.6	10.8	12.07	12.67	...	...
23	.546	.404	.376	.4312	32.6	44.5	34.0	37.52	— 6.43	.157	.127	.180	.149	85	43	92	69	S W	S E	N	S 80 W	2.0	11.4	6.6	2.08	6.55	Inap.	0.5
24	.324	.408	.548	.4355	32.2	34.0	36.2	34.43	— 9.87	.170	.147	.160	.157	93	75	75	78	N	N W	N W	N 31 W	10.0	26.2	13.4	16.42	16.92	...	1.3
25	.640	.700	.752	.7090	33.5	48.0	37.5	39.67	— 4.99	—	—	—	—	—	—	—	—	N W	N W	N W	N 37 W	24.5	19.6	4.6	14.15	14.18	...	...
26	.783	.739	.759	.7572	32.2	52.4	37.6	41.82	— 3.20	.162	.115	.132	.140	89	29	59	57	W	W	W	N 61 W	4.7	17.4	7.8	5.57	8.20	...	...
27	.746	.631	.521	.6217	36.6	48.8	36.0	41.27	— 4.15	.138	.149	.133	.140	63	43	60	54	N	S E	N E	N 89 E	7.1	9.8	3.0	4.21	6.26	...	...
28	.471	.424	.443	.4448	38.0	52.8	41.2	45.15	— 0.62	.135	.137	.161	.158	59	34	62	54	S E	S E	E	S 74 E	1.8	7.2	3.4	3.50	5.66	...	...
29	.425	.230	.016	.2282	37.3	40.9	42.3	41.02	— 5.08	.179	.211	.202	.202	80	82	74	78	N	N E	S W	N 67 E	1.6	12.9	39.8	0.39	10.75	.830	...
30	.296	.482	.612	.4685	38.7	39.4	33.3	37.29	— 9.28	.185	.109	.127	.144	79	45	65	65	S W	W	N W	S 85 W	10.8	26.0	8.2	18.67	19.12	...	...
	29.5983	29.5734	29.5863	29.5872	32.09	41.41	34.73	36.35	— 4.74	.148	.155	.148	.151	79	59	72	69	...	...	...	...	8.51	13.47	9.19	...	10.16	1.230	2.7

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR APRIL, 1875.

NOTE.—The monthly means of Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer.....30.079 at 2 p.m. on 5th } Monthly range
Lowest Barometer.....28.892 at 8 p.m. on 29th } 1.187.

Self-registering Ther.
- Maximum temperature .....62°2 on 10th } Monthly range
- Minimum temperature .....10°0 on 18th } 52°2.
- Mean maximum temperature.....44°05 } Monthly range
- Mean minimum temperature .....28°98 } 15°07.
- Greatest daily range .....29°6 from a.m. to p.m. of 10th.
- Least daily range ..... 5°8 from a.m. to p.m. of 6th and 13th.

Warmest day .....10th; mean temperature.....45°70 } Difference=26°83.
Coldest day .....17th; mean temperature.....18°87 }

Maximum Radiation
- Solar .....123°0 on 26th } Monthly range
- Terrestrial ..... 0°0 on 16th } 123°0.

Aurora observed on 1 night, viz., 26th.

Possible to see Aurora on 16 nights; impossible on 14 nights.

Snowing on 8 days; depth, 2.7 inches; duration of fall, 26.2 hours.

Raining on 10 days; depth, 1.230 inches; duration of fall, 32.9 hours.

Mean of cloudiness, 0.62.

WIND.

Resultant direction, N. 37° W.; resultant velocity, 3.71 miles.

Mean velocity, 10.16 miles per hour.

Maximum velocity, 39.8 miles, from 9 p.m to 10 p.m., 29th.

Most windy day, 21st; mean velocity, 18.76 miles per hour.

Least windy day, 3rd; mean velocity, 2.50 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 13.47 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 7.26 miles per hour.

Fog on 1st, 3rd, and 14th.

Solar haloes on 14th and 26th.

Lunar halo on 18th.

13th, Bay open.

COMPARATIVE TABLE FOR APRIL.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velocity.	Mean Velocity.
	°	°	°	°	°					°		
1847	39.2	— 1.6	65.1	9.3	55.8	8	2.870	2	4.0	...	...	0.59 lbs.
1848	41.3	+ 0.5	65.1	22.7	42.4	5	1.455	1	0.5	N 77 W	1.46	4.89 mls.
1849	39.0	— 1.8	72.0	15.5	56.5	10	2.655	2	1.7	N 43 W	3.14	7.50
1850	37.9	— 2.9	65.7	18.0	47.7	7	4.720	2	1.1	N 50 E	1.12	7.64
1851	41.3	+ 0.5	59.3	25.8	33.5	11	2.295	3	1.2	N 14 E	2.52	8.07
1852	38.2	— 2.6	53.8	20.0	33.8	6	1.990	4	9.4	N 23 E	2.44	6.68
1853	41.9	+ 1.1	65.7	25.0	40.7	10	2.625	1	1.0	N 12 W	1.95	5.20
1854	41.0	+ 0.2	64.5	20.2	44.3	12	2.685	4	2.7	N 50 E	2.57	6.81
1855	42.4	+ 1.6	69.4	10.7	58.7	8	2.030	3	1.6	N 36 W	3.99	7.57
1856	42.3	+ 1.5	72.2	14.2	58.0	13	2.780	3	0.1	N 29 E	1.64	6.05
1857	35.3	— 5.5	52.0	5.9	46.1	10	1.755	11	12.9	N 60 W	4.15	10.24
1858	41.5	+ 0.7	65.2	21.8	43.4	13	1.642	2	0.1	N 14 W	1.64	9.57
1859	39.5	— 1.3	64.8	22.6	42.2	9	2.527	8	1.2	N 36 W	2.33	10.79
1860	39.5	— 1.3	61.8	19.5	42.3	11	1.282	5	0.3	N 37 W	4.10	10.39
1861	42.0	+ 1.2	67.0	23.8	43.2	12	1.619	4	6.9	N 37 E	2.31	8.90
1862	39.6	— 1.2	68.0	14.5	53.5	10	2.235	4	0.2	N 50 E	2.48	9.77
1863	42.0	+ 1.2	69.0	8.6	60.4	8	2.210	3	1.6	N 14 E	3.75	9.20
1864	40.9	+ 0.1	59.4	28.1	31.3	16	3.633	6	3.5	N 41 E	3.39	7.77
1865	43.1	+ 2.3	62.5	23.0	39.5	17	3.972	2	2.0	N 84 W	2.11	8.39
1866	43.9	+ 3.1	71.0	28.5	42.5	7	1.675	5	Inap.	N 42 W	3.34	7.95
1867	39.5	— 1.3	65.5	25.4	40.1	12	2.147	10	7.2	N 51 W	2.68	7.89
1868	38.0	— 2.8	64.0	9.2	54.8	7	0.990	6	5.3	N 63 W	2.43	9.24
1869	40.1	— 0.7	72.2	16.6	55.6	9	2.965	2	0.5	N 59 W	4.03	8.91
1870	44.6	+ 3.8	67.0	29.6	37.4	9	2.145	2	0.1	N 40 E	3.55	7.03
1871	43.0	+ 2.2	72.8	26.4	46.4	17	3.318	2	1.3	N 48 W	1.80	8.85
1872	40.5	— 0.3	70.0	22.7	47.3	9	0.910	5	0.7	N 68 W	3.84	9.12
1873	38.6	— 2.2	61.2	24.4	36.8	13	3.975	3	Inap.	N 18 E	2.89	9.05
1874	34.2	— 6.6	60.8	9.5	51.3	4	1.240	7	11.0	N 39 W	4.09	9.64
1875	36.4	— 4.4	62.2	10.0	52.2	10	1.230	8	2.7	N 37 W	3.71	10.16
Results to 1874.	40.84	...	65.25	19.34	45.91	9.39	2.362	3.75	2.5	N 21 W	2.14	8.26
Excess for 1875	— 4.49	...	— 3.05	— 9.34	+ 6.29	+ 0.11	— 1.132	+ 4.25	+ 0.17	...	...	+ 1.90

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—MAY, 1875.

Latitude—43° 39′ 4″ *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°. 6 A.M.	2 P.M.	10 P.M.	Mean.	Temp. of the Air. 6 A.M.	2 P.M.	10 PM	ME'N.	Excess of Mean above Normal	Tension of Vapour. 6 A.M.	2 P.M.	10 P.M.	M'N.	Relative Humidity 6 A.M.	2 P.M.	10 P.M.	M'N.	Direction of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	Velocity of Wind. 6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN.	Rain in inches.	Snow in inches.
					°	°	°	°	°																			
1	29.618	29.245	28.812	29.1810	30.8	31.5	37.3	34.45	−12.40	.149	.155	.212	.176	36	87	95	87	W	N E	E	N 72 E	1.4	19.5	16.1	10.97	12.34	0.600	3.0
2	28.913	.267	29.440	.2210	35.5	37.3	34.7	35.77	−11.43	—	—	—	—	—	—	—	—	S W	W	W	S 72 W	21.0	40.0	19.0	25.31	26.67	.040	0.1
3	29.496	.446	.460	.4677	34.4	48.6	39.1	41.38	− 6.17	.151	.120	.138	.129	74	34	57	51	S W	W	N W	S 86 W	16.5	26.5	5.4	16.59	17.16	...	...
4	.423	.404	.472	.4362	36.9	49.5	41.2	41.82	− 6.08	.115	.181	.144	.143	53	51	55	54	N W	S	N W	N 67 W	5.5	7.8	4.2	3.74	6.72	...	...
5	.494	.448	.368	.4313	34.4	52.1	41.2	43.70	− 4.57	.151	.206	.243	.214	74	53	94	76	N E	S W	S E	S 6 W	3.8	14.0	17.5	4.60	7.83	.300	...
6	.361	.378	.546	.4390	38.4	42.0	36.5	39.07	− 9.58	.181	.206	.151	.179	77	77	70	74	W	S W	N W	S 86 W	12.5	16.2	13.4	9.54	12.38	.090	...
7	.642	.656	.492	.5882	33.7	47.7	44.1	42.48	− 6.53	.165	.255	.242	.226	86	76	84	81	N W	E	N E	N 35 E	5.0	6.1	15.5	4.42	9.32	Inap.	...
8	.298	.194	.147	.2117	47.0	62.5	50.6	53.62	+ 4.25	.278	.374	.329	.338	85	66	89	82	N E	N E	S E	N 68 E	14.5	11.0	1.6	10.07	10.55	.090	...
9	.290	.240	.108	.1937	55.0	63.6	54.2	57.18	+ 7.50	—	—	—	—	—	—	—	—	W	S W	W	S 87 W	11.4	13.0	4.2	8.03	9.46	.970	...
10	.240	.395	.549	.4157	47.7	57.8	47.4	50.18	+ 0.20	.271	.287	.238	.251	82	60	72	69	N W	S W	W	N 51 W	27.5	19.8	5.2	12.53	15.68	.050	...
11	.623	.595	.429	.5280	45.2	60.0	46.3	51.35	+ 0.95	.265	.302	.263	.276	88	58	84	74	W	S E	E	S 27 E	2.4	12.6	18.2	3.31	7.91	.055	...
12	.048	.138	.629	.3102	48.4	43.6	41.6	44.37	− 6.35	.315	.212	.147	.224	92	74	55	74	S	W	W	S 59 W	13.0	39.0	8.5	11.26	19.35	.230	...
13	.720	.727	.764	.7460	39.4	60.7	47.7	50.85	− 0.25	.176	.228	.244	.230	73	43	74	63	S W	W	S W	S 46 W	6.8	18.0	0.9	6.93	7.62	...	...
14	.746	.663	.500	.6253	48.1	50.6	43.0	47.60	− 3.83	.239	.246	.238	.251	71	66	85	76	N E	N E	N E	N 58 E	5.0	12.2	16.0	7.88	9.07	.070	...
15	.664	.820	.920	.8130	41.2	51.3	44.5	46.17	− 5.62	.207	.197	.147	.179	80	52	49	58	N W	N W	N W	N 31 W	19.0	20.4	12.5	18.29	18.85	...	...
16	30.000	.970	.939	.9677	41.2	56.6	47.0	47.72	− 4.40	—	—	—	—	—	—	—	—	N	N W	N W	N 33 W	14.7	21.0	12.0	14.31	14.38	...	...
17	29.940	.872	.868	.8930	45.2	60.0	45.6	51.93	− 0.55	.154	.227	.232	.203	57	43	75	54	S W	S	N	N 90 W	4.8	10.7	5.5	3.58	7.72	...	...
18	.854	.821	.787	.8148	51.7	54.6	45.9	50.43	− 2.38	.124	.142	.163	.149	51	33	53	41	N W	S E	W	N 85 E	1.2	9.5	3.4	3.11	6.19	...	...
19	.751	.624	.487	.0042	46.3	56.0	48.8	52.47	− 0.70	.186	.174	.230	.214	59	39	66	55	N	S E	W	S 11 W	1.6	7.8	6.0	2.37	5.73	...	...
20	.401	.431	.492	.4417	46.5	74.4	64.0	62.65	+ 9.12	.282	.205	.282	.240	90	24	46	47	S W	W	W	S 88 W	5.5	25.0	4.4	8.38	10.52	...	...
21	.526	.502	.489	.4983	53.9	66.5	61.4	62.10	+ 8.23	.307	.444	.488	.422	74	68	89	75	S W	S	S W	S 41 W	2.2	6.6	3.2	3.00	4.48	.125	...
22	.518	.531	.530	.5278	56.0	72.3	62.9	64.63	+10.43	.399	.558	.479	.486	89	71	84	80	S W	S	S	S 12 W	2.6	7.8	0.6	3.43	3.89	...	...
23	.575	.548	.526	.5517	65.0	71.9	58.2	65.05	+10.50	—	—	—	—	—	—	—	—	E	E	N E	N 86 E	1.0	12.0	0.4	4.78	5.39	...	...
24	.536	.450	.424	.4595	57.1	68.7	59.3	62.58	+ 7.08	.397	.537	.453	.472	85	76	90	83	N W	S E	S	S 30 E	4.0	6.0	8.3	2.25	4.00	Inap.	...
25	.387	.375	.471	.4148	59.6	75.9	64.3	67.57	+12.33	.449	.616	.513	.526	88	69	52	64	S W	S W	N W	N 81 W	6.0	7.6	8.0	4.29	8.90	...	...
26	.617	.685	.757	.6980	58.2	67.6	53.9	60.72	+ 5.15	.206	.306	.307	.264	42	45	74	51	N	S	N E	N 14 W	14.5	7.2	0.9	3.19	8.09	...	...
27	.844	.812	.785	.8122	53.9	66.1	54.2	59.68	+ 3.78	.242	.254	.218	.243	58	40	52	48	N E	E	E	N 66 E	4.0	13.5	9.8	9.09	9.47	...	...
28	.779	.633	.543	.6393	53.1	65.4	59.3	59.82	+ 3.00	.284	.409	.368	.352	70	65	72	68	N E	E	E	N 86 E	4.2	10.6	3.6	5.39	6.02	...	...
29	.468	.604	.710	.6005	55.0	66.1	55.0	58.98	+ 2.43	.368	.315	.228	.306	85	49	52	61	N W	N W	N W	N 49 W	2.0	16.5	16.7	10.00	11.20	.300	...
30	.760	.745	.723	.7473	51.5	61.1	57.0	57.33	+ 0.96	—	—	—	—	—	—	—	—	N W	S	N W	S 85 W	4.8	7.6	8.0	2.58	6.40	...	...
31	.775	.720	.679	.7168	53.1	65.8	52.4	57.22	+ 0.05	.212	.214	.221	.220	52	34	55	50	N E	E	N E	N 64 E	8.2	10.8	6.8	6.60	8.31	...	...
	29.5583	29.5464	29.5434	29.5483	47.20	58.30	49.63	52.29	+ 0.20	.241	.283	.258	.263	73	56	70	65	.....	.....	.....	.....	7.95	14.72	8.25	.....	10.07	2.980	3.1

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR MAY, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M. and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer ..... 30.019 at 8 a.m. on 16th } Monthly range=
Lowest Barometer .....28.751 at midnight on 1st } 1.268.

Self-registering Ther.
- Maximum temperature .....79.2 on 25th } Monthly range=
- Minimum temperature .....27.0 on 1st } 52°2
- Mean maximum temperature .....61°45 } Mean daily range=
- Mean minimum temperature .....41°65 } 19°80
- Greatest daily range.....31°6 from a.m. to p.m. of 20th.
- Least daily range ..... 5°0 from a.m. to p.m. of 2nd.

Warmest day.....25th; mean temperature 67°57 } Difference=33°12
Coldest day..... 1st; mean temperature 34°45 }

Maximum
Radiation
- Solar.....134°0 on 25th } Difference=122°0
- Terrestrial ..... 12°0 on 1st }

Aurora observed on 2 nights, viz:—3rd and 21st.

Possible to see Aurora on 19 nights; impossible on 12 nights.

Raining on 14 days; depth, 2.980 inches; duration of fall, 58.9 hours.

Snowing on 2 days; depth, 3.1 inches; duration of fall, 4.5 hours.

Mean of cloudiness=0.53.

WIND.

Resultant direction, N. 46° W.; resultant velocity, 3.34 miles.

Mean velocity, 10.07 miles per hour.

Maximum velocity, 40.0 miles from 2 to 3 p.m. on 2nd.

Most windy day, 2nd; mean velocity, 26.67 miles per hour.

Least windy day, 22nd; mean velocity, 3.89 miles per hour.

Most windy hour, 9 p.m.; mean velocity, 14.72 miles per hour.

Least windy hour, 5 a.m.; mean velocity, 7.11 miles per hour.

Solar haloes on 4th, 7th, 20th and 30th.

Lunar halo on 13th.

Rainbow on 29th.

Thunder on 4 days. Lightning on 5 days.

Swallows seen on 5th.

1st May. Furious snow storm; very general in Canada.

COMPARATIVE TABLE FOR MAY.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity.	Mean Velocity.
	°	°	°	°	°					°		
1847	54.4	+ 2.7	72.1	26.7	45.4	12	2.040	0	0.0	...	...	0.29 lbs.
1848	54.1	+ 2.4	78.0	31.3	46.7	13	2.520	0	0.0	N 40 W	1.31	4.93mls.
1849	48.0	— 3.7	72.2	27.9	44.3	16	5.115	0	0.0	N 51 E	1.97	5.33
1850	47.6	— 4.1	77.8	27.5	50.3	7	0.545	1	Inap.	N 64 W	2.05	6.32
1851	51.3	— 0.4	73.3	28.0	45.3	12	2.950	1	0.5	N 32 W	1.59	6.34
1852	51.4	— 0.3	73.3	32.0	41.3	7	1.125	1	Inap.	S 82 W	0.99	4.00
1853	50.9	— 0.8	78.4	32.2	46.2	17	4.420	1	Inap.	N 2 W	0.83	5.16
1854	52.2	+ 0.5	71.4	25.2	46.2	11	4.630	0	0.0	E	0.40	5.38
1855	53.1	+ 1.4	77.5	33.0	44.5	6	2.565	2	0.9	N 1 W	2.76	5.93
1856	50.5	— 1.2	82.2	31.2	51.0	14	4.580	1	Inap.	N 4 E	3.99	9.81
1857	48.9	— 2.8	74.8	26.0	48.8	15	4.145	1	Inap.	N 23 W	1.14	8.13
1858	48.9	— 2.8	69.8	31.0	38.8	17	6.367	0	0.0	N 42 E	3.33	9.30
1859	55.2	+ 3.5	79.6	39.5	40.1	11	3.410	0	0.0	N 72 E	1.59	5.70
1860	55.5	+ 3.8	74.5	32.5	42.0	16	1.815	0	0.0	N 26 E	2.66	7.17
1861	47.5	— 4.2	73.0	28.0	45.0	12	3.380	1	0.5	N 47 W	3.60	9.17
1862	52.2	+ 0.5	78.5	32.4	46.1	8	1.427	0	0.0	N 52 W	2.80	7.87
1863	54.3	+ 2.6	79.0	36.4	42.6	14	3.363	1	0.1	N 56 E	0.41	5.89
1864	54.8	+ 3.1	79.0	32.2	46.8	18	4.070	0	0.0	N 7 W	1.86	5.64
1865	52.3	+ 0.6	79.0	30.0	49.0	11	4.005	0	0.0	N 3 W	1.65	5.48
1866	48.3	— 3.4	73.4	33.4	40.0	13	2.820	0	0.0	N 46 W	4.49	9.26
1867	46.5	— 5.2	65.0	24.6	40.4	18	3.220	1	Inap.	N 51 W	3.55	8.40
1868	51.8	+ 0.1	73.0	33.2	39.8	16	7.670	0	0.0	N 38 E	3.16	6.87
1869	50.8	— 0.9	74.2	31.4	42.8	16	2.805	1	Inap.	N 20 W	2.38	6.55
1870	56.3	+ 4.6	81.2	38.8	42.4	10	1.150	0	0.0	N 23 E	1.09	5.48
1871	54.2	+ 2.5	85.0	32.4	52.6	7	2.302	0	0.0	N 23 W	2.53	7.70
1872	51.9	+ 0.2	78.8	32.0	46.8	14	1.934	0	0.0	N 52 W	2.25	6.49
1873	51.9	+ 0.2	76.4	30.0	46.4	13	2.205	0	0.0	N 26 E	2.69	8.88
1874	52.5	+ 0.8	86.0	25.3	60.7	8	1.492	0	0.0	N 49 W	2.64	8.45
1875	52.3	.....	79.2	27.0	52.2	14	2.980	2	3.1	N 46 W	3.34	10.07
Res'lts to 1874.	51.69	.....	76.30	30.86	45.44	11.86	3.136	0.34	0.06	N 14 W	1.66	6.88
Excess for '75.	+ 0.60	.....	+ 2.90	— 3.86	+ 6.76	+ 2.14	— 0.156	+ 1.66	+ 3.04	...	...	+ 3.19

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JUNE, 1875.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal.	Tension of Vapour.				Relative Humidity.				Direction of Wind.				Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Resultant.	6 A.M.	2 P.M.	10 P.M.	Result't	MEAN		
1	29.656	29.618	29.592	29.6187	54.6°	67.6°	56.4°	60.13°	+ 2.63°	.287	.319	.295	.294	70	46	65	57	N E	N E	N E	N 68° E	10.8	14.8	4.2	9.91	10.13	...	...
2	.586	.583	.508	.5468	57.8	66.1	62.5	62.45	+ 4.65	.364	.437	.460	.420	76	68	81	74	E	E	E	S 86 E	5.0	12.0	6.8	6.24	6.53	...	...
3	.576	.593	.687	.6227	55.0	70.8	57.8	60.53	+ 2.40	.313	.362	.266	.315	73	48	56	60	S W	S	W	S 31 W	6.4	14.3	9.3	7.46	9.15	...	...
4	.783	.690	.688	.7132	50.6	59.4	53.5	55.87	— 2.60	.297	.393	.366	.356	80	77	89	79	S W	E	N E	N 80 E	4.5	4.2	4.8	1.61	4.33	0.050	...
5	.655	.596	.576	.6132	54.6	62.5	56.4	58.13	— 9.63	.352	.423	.395	.363	83	75	86	75	É	S	N W	N 64 E	2.0	2.8	15.5	0.91	4.40	...	...
6	.650	.640	.560	.6102	56.0	63.5	57.0	58.33	— 0.76	—	—	—	—	—	—	—	—	N W	S	N	N 72 W	6.0	6.4	4.0	2.37	7.34	...	...
7	.516	.464	.531	.5093	50.3	62.9	55.3	55.20	— 4.20	.239	.324	.244	.261	66	56	55	59	N W	S	N W	S 76 W	6.8	9.5	5.4	2.27	6.28	...	...
8	.673	.696	.764	.7153	50.3	66.8	52.8	57.12	— 2.62	.249	.353	.257	.292	68	53	63	62	S W	S	S W	S 4 W	3.2	16.7	0.8	5.78	8.11	...	...
9	.810	.792	.690	.7483	48.8	65.0	56.7	58.28	— 1.75	.278	.330	.345	.311	81	54	75	66	N E	E	N	N 59 E	3.0	9.7	5.1	5.22	6.83	.010	...
10	.669	.647	.669	.6602	52.1	64.3	55.7	59.40	— 0.97	.362	.399	.369	.390	93	66	83	78	E	S E	N E	N 89 E	3.2	8.2	6.4	4.03	5.01	...	...
11	.667	.581	.443	.5517	57.5	70.5	62.9	64.10	+ 3.40	.392	.513	.479	.463	82	68	83	77	E	E	E	N 82 E	7.6	12.0	2.4	5.50	6.03	...	...
12	.365	.505	.685	.5273	60.4	57.5	47.7	54.72	— 6.28	.488	.269	.244	.329	93	57	74	73	S W	W	W	N 71 W	4.0	31.5	4.8	13.00	14.59	.100	...
13	.780	.724	.704	.7430	44.0	57.5	43.4	49.05	—12.29	—	—	—	—	—	—	—	—	N W	W	W	N 70 W	11.0	19.0	1.2	11.37	11.99	...	...
14	.702	.593	.602	.6295	47.4	67.2	51.7	56.88	— 4.78	.199	.195	.211	.198	60	29	55	45	S W	W	N W	S 83 W	8.8	15.2	4.2	7.46	9.34	...	...
15	.627	.554	.529	.5602	49.9	69.0	56.0	59.93	— 2.05	.235	.266	.280	.272	65	37	62	54	W	S	N E	S 6 W	3.6	10.5	4.5	2.34	6.15	...	...
16	.543	.544	.586	.5617	56.4	69.0	55.3	61.43	— 0.87	.260	.266	.213	.251	57	37	49	47	N W	S E	N W	N 27 W	4.0	5.5	1.0	1.65	5.40	...	...
17	.658	.661	.621	.6465	55.7	51.0	52.1	53.05	— 9.55	.239	.332	.319	.310	54	88	82	77	N	N E	N	N 25 E	5.0	7.3	4.7	4.52	5.23	.520	...
18	.626	.636	.620	.6250	50.6	71.5	61.8	61.78	— 1.13	.275	.340	.213	.280	75	44	39	53	N W	N W	N W	N 43 W	5.0	16.0	15.5	10.11	10.37	...	...
19	.613	.651	.714	.6690	55.7	69.7	58.9	62.28	— 0.93	.272	.205	.261	.258	61	28	52	47	N W	N W	N W	N 53 W	11.5	18.5	3.5	12.78	12.83	...	...
20	.810	.796	.740	.7768	56.0	71.9	57.0	61.68	— 1.83	—	—	—	—	—	—	—	—	N W	S	W	S 17 W	1.9	10.0	2.3	2.47	4.39	...	...
21	.735	.667	.610	.6640	53.5	77.3	56.0	64.20	+ 0.40	.322	.276	.269	.300	79	29	60	55	S	S E	N E	S 38 E	0.8	5.2	4.7	2.39	3.59	...	...
22	.530	.513	.446	.4937	60.4	64.3	61.1	62.58	— 1.52	.285	.554	.531	.483	54	92	99	84	N E	S E	E	N 86 E	3.8	4.8	2.5	2.59	3.75	.055	...
23	.410	.595	.472	.4297	57.8	77.7	65.1	69.15	+ 4.77	.480	.669	.543	.553	100	70	88	80	S	S	N	S 27 W	2.6	8.5	3.1	4.12	6.12	...	...
24	.493	.351	.437	.4368	64.3	79.8	63.6	68.33	+ 3.72	.515	.656	.512	.561	85	65	87	81	S E	S	S	S 18 W	5.0	20.5	6.0	5.89	7.88	.900	...
25	.556	.605	.569	.5762	67.9	75.5	64.7	69.07	+ 4.17	.618	.651	.498	.589	90	74	81	82	N W	S E	N E	S 68 E	1.6	11.0	4.6	2.47	5.25	...	...
26	.540	.498	.483	.5067	58.2	68.0	64.3	63.38	— 1.75	.468	.573	.595	.551	96	83	99	94	N E	S E	E	S 78 E	1.8	1.6	0.4	2.07	2.89	.120	...
27	.480	.400	.270	.3793	61.0	81.0	69.0	69.95	+ 4.56	—	—	—	—	—	—	—	—	E	S	S	S 3 E	1.0	8.3	12.0	5.37	5.90	...	...
28	.406	.657	.711	.6163	65.0	66.1	59.6	63.58	— 2.07	.467	.375	.412	.397	76	58	80	68	N W	N W	N	N 51 W	20.0	10.0	7.5	10.77	13.71	...	...
29	.725	.634	.553	.6283	56.8	58.9	59.6	58.40	— 7.47	.355	.458	.499	.434	77	91	97	88	N E	N E	N E	N 49 E	10.5	5.8	2.3	7.04	7.92	...	...
30	.584	.587	.686	.6232	59.3	80.6	64.7	69.38	+ 3.27	.465	.466	.334	.433	92	45	54	62	S W	W	N W	S 83 W	5.7	19.5	12.0	7.13	9.02	...	...
	29.6141	29.5957	29.5915	29.6001	55.60	67.76	57.95	60.95	— 1.06	.349	.400	.362	.372	76	59	73	68	.....	.....	.....	.....	5.54	11.31	5.38	.....	7.35	1.825	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JUNE, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest barometer .....29.841 at 8 a.m. on 13th } Monthly range=
Lowest barometer .....29.270 at 10 p.m. on 27th } 0.571.

Self-registering Ther.
- Maximum temperature .....86°8 on 23rd } Monthly range= 49°4.
- Minimum temperature .....37°4 on 14th }
- Mean maximum temperature .....72°30 } Mean daily range= 22°63.
- Mean minimum temperature.....49°66 }
- Greatest daily range.....3+°8 from a.m. to p.m. of 21st.
- Least daily range ..... 7°3 from a.m. to p.m. of 17th.

Warmest day .....27th; mean temperature.....69°95 } Difference=20°90.
Coldest day.....13th; mean temperature.....49°05 }

Maximum Radiation
- Solar .....138°0 on 24th } Monthly range= 118°2.
- Terrestrial ..... 19°8 on 14th }

No Aurora observed.

Possible to see Aurora on 20 nights; impossible on 10 nights.

Raining on 7 days; depth, 1.825 inches; duration of fall, 26.5 hours.

Mean of cloudiness, 0.56.

WIND.

Resultant direction, N. 69° W.; resultant velocity, 1.05 miles.

Mean velocity, 7.35 miles per hour.

Maximum velocity, 31.5 miles per hour, from 2 to 3 p.m. of 12th.

Most windy day, 12th; mean velocity, 14.59 miles per hour.

Least windy day, 26th; mean velocity, 2.89 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 11.31 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 4.70 miles per hour.

Solar haloes on 6th, 7th and 22nd.

Fog on 5th, 17th, 22nd, 23rd, 24th, 26th, 29th and 30th.

Thunder on 9th, 11th, 12th, 24th and 25th.

Lightning on 2nd, 9th, 11th, 12th, 23rd, 24th, 25th, 26th and 27th.

COMPARATIVE TABLE FOR JUNE.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity.
	°	°	°	°	°					°		
1847	58.4	— 3.4	77.8	36.7	41.1	14	2.625	...	...	...	...	0.30 lbs
1848	62.9	+ 1.1	92.0	37.4	54.6	8	1.810	...	...	N 61 W	1.90	4.51 mls
1849	63.2	+ 1.4	84.4	35.2	49.2	7	2.020	...	...	S 71 E	0.49	3.32
1850	64.3	+ 2.5	85.6	34.2	51.4	10	3.345	...	...	S 66 W	0.38	4.54
1851	59.2	— 2.6	79.2	37.0	42.2	11	2.695	...	...	S 2 W	1.26	4.42
1852	60.8	— 1.0	86.1	37.2	48.9	10	3.160	...	...	S 76 W	1.49	4.09
1853	65.5	+ 3.7	89.5	39.2	50.3	9	1.550	...	...	N 1 W	0.10	3.73
1854	64.1	+ 2.3	92.5	35.2	57.3	9	1.460	...	...	N 24 E	0.71	4.15
1855	59.9	— 1.9	91.5	36.2	55.3	17	4.070	...	...	N 69 W	1.33	5.70
1856	62.1	+ 0.3	89.2	42.0	47.2	13	3.200	...	...	S 21 W	0.90	5.30
1857	56.9	— 4.9	76.0	35.0	41.0	21	5.060	...	...	N 49 W	1.15	7.60
1858	66.2	+ 4.4	90.2	42.5	47.7	12	2.943	...	...	S 20 E	0.25	5.53
1859	58.3	— 3.5	86.4	32.2	54.2	16	4.085	2	Inap.	N 77 E	1.95	7.19
1860	63.2	+ 1.4	81.6	49.2	32.4	14	3.130	...	...	N 44 W	3.13	7.61
1861	61.3	— 0.5	87.8	41.6	46.2	13	2.329	...	...	N 39 W	2.29	6.11
1862	60.5	— 1.3	85.4	39.4	46.4	10	1.007	...	...	N 26 W	1.77	5.98
1863	60.1	— 1.7	84.8	37.4	47.4	13	1.662	...	...	N 50 W	2.26	5.24
1864	63.0	+ 1.2	93.4	34.8	58.6	5	0.570	...	...	N 55 W	1.72	4.53
1865	64.5	+ 2.7	90.2	43.0	47.2	7	2.0[illegible]	...	...	S 30 W	0.60	4.06
1866	60.2	— 1.6	90.5	40.0	50.5	15	2.720	...	...	S 15 W	0.71	5.09
1867	64.3	+ 2.5	88.6	44.0	44.6	8	0.885	...	...	S 84 E	0.48	4.13
1868	62.0	+ 0.2	84.2	38.0	46.2	11	2.217	...	...	N 16 E	0.85	5.26
1869	58.4	— 3.4	81.4	36.4	45.0	22	4.373	...	...	N 80 W	1.77	5.23
1870	67.3	+ 5.5	88.4	50.0	38.4	16	8.090	...	...	N 17 E	0.40	5.14
1871	61.4	— 0.4	83.0	41.8	41.2	13	3.340	...	...	N 80 W	2.04	6.57
1872	63.7	+ 1.9	88.0	41.8	46.2	8	3.148	...	...	N 69 W	0.76	3.80
1873	63.7	+ 1.9	89.5	40.0	49.5	10	0.6[illegible]0	...	...	N 18 E	1.00	6.43
1874	62.5	— 0.7	88.0	44.2	43.8	13	1.795	...	...	N 44 W	1.68	6.52
1875	61.0	— 0.8	86.8	37.4	49.4	7	1.825	...	...	N 69 W	1.05	7.35
Results to 1874.	61.76	...	86.63	39.34	47.29	11.77	2.873	...	...	N 60 W	0.83	5.25
Excess for '75.	— 0.81	...	+ 0.17	— 1.94	+ 1.11	— 4.77	— 1.048	...	...	...	...	+ 2.10

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THE CANADIAN JOURNAL.

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LAPIDARIUM SEPTENTRIONALE.*

At length the *Lapidarium Septentrionale*, or "Description of the Monuments of Roman Rule in the North of England, published by the Society of Antiquaries of Newcastle-upon-Tyne," which has been passing through the press for the last five years, is completed by the appearance of Part V, embracing an "Appendix containing Additions, Notes, and Emendations," "Indices," "Preface" by Rev. Dr. J. C. Bruce, the Editor, "Introduction," and three "Maps." The five parts form a remarkably handsome folio volume, profusely illustrated by excellent woodcuts from faithful drawings of the objects that are described or explained; and the text is printed in a style and on paper that leave the most fastidious nothing to desire in these respects. The first four parts comprise the Roman inscriptions and most important objects of sculpture, numbering together over 900, which have been found in the counties of Northumberland, Durham, Cumberland, and Westmorland. Of "the Additions" in Part V. we do not presume to offer any opinion as to their completeness, for none but those antiquaries who reside on the spot, or who have visited the region with a view to researches of this kind, or who have access to well-furnished libraries of local Archæology, can form a competent judgment on such a subject.

We shall consequently limit our observations to the interpretations, and with some of these we are not satisfied. In n. 942 a grave-

* "*Lapidarium Septentrionale;* or, a description of the Monuments of Roman Rule in the North of England. Published by the Society of Antiquaries of Newcastle-upon-Tyne. Part V. Printed by Andrew Reid, and published by William Dodd, 1875."

stone is figured, unfortunately imperfect, so that "we do not know how much of the upper portion of the stone is wanting." It bears the inscription :—

PLVM * * *
LVNARI *
TITVL · POS
CONIVGI
CARISI
M

Dr. Bruce expands it thus :—"*Plumæ Lunaris titulum posuit conjugi carissimæ,*" and offers the following remarks :—

"There is some little uncertainty about the reading of this inscription. The simplest, and therefore the most probable, rendering of it is to suppose that the husband, *Lunaris,* rears the tombstone to his wife, *Pluma. Lunaris* occurs among the list of Romano-Gaulish potters given in Mr. C. Roach Smith's Collectanea Antiqua, vol. vi., page 73. The name *Pluma* does not, so far as we know, elsewhere occur."

The first line seems to contain the ordinary formula *plus minus* (*i.e.*, PLVMIN with, perhaps, the S in the fork of the V), which is used when the exact age was not known. The name of the female &c., were on the lost portion of the stone.

In n. 943 a broken stone, "found in the Forum of the Station of Cilurnum, Feb. 3rd, 1875," is figured. It bears the inscriptions :—

ALVIS · AVGG ·
ELIX · ALA · II · ASTVR

VIRTVS
AVGG

Dr. Bruce expands them thus :—"*Salvis Augustis felix ala secunda Asturum Antoniniana ?—Virtus Augustorum,*" and offers the following remarks on them :—

"The inscription is different from any that we have previously met with. The evident meaning of it is, "So long as the Emperors are safe the second ala of Asturians will be happy." A reference to the inscription, No. 121, leads us to suppose that the Emperors to whom this flattering compliment was paid were Elagabalus and Severus Alexander. Very soon after this inscription was carved Elagabalus was slain by the infuriated soldiery at Rome, and the second ala of Asturians, at Cilurnum, sympathizing with them, erased, though not entirely, the second G at the end of the first line, and that at the end of the inscription on the banner in the hands of the standard-bearer, as well as the whole of the third line of the principal inscription, which was probably an epithet which the

ala had been permitted to assume, by favour of the unfortunate Emperor when he was a popular idol."

The inscription, given by * Orelli, n. 864, confirms Dr. Bruce's view of the meaning:—*ΣΑΛΒΩ ΚΩΜΜΟΔΩ ΦΗΛΙΞ ΦΑΥΣΤΕΙΝΑ*, *i. e.*, *Salvo Commodo felix Faustina*, but his reference of AVGG to Elagabalus and Severus Alexander is certainly incorrect. So far as we are aware, there is no example of the application of the term *Augusti* to those two Emperors. Nor is there any evidence that they were united under that name. To us it seems highly probable that the two Augusti were Caracalla and Geta, that the date is A.D. 211 after the death of Severus, and that the second G was erased after the murder of Geta in A.D. 212. But the most interesting result of this discovery is that the inscription throws light on another which unfortunately is lost. It is given from Horsley, in the *Lapidarium Septentrionale*, n. 27, and in *Britanno-Roman Inscriptions*, p. 133.

VICTORIAE
* * GGALFE
N S SENECIO
N COS FELIX
ALA I ASTO
[RV]M PRA

Of the true reading of the main part of the inscription there can be but little doubt. It is—*Victoriæ Augustorum, Alfenus Senecio Vir Clarissimus Consularis Felix Ala prima Astorum.* ALA has been regarded as standing for ALAE, the letters RVM as the final three of *Astorum* for *Asturum*, and PRA as the first three of *Præfectus.* Thus *Felix* was regarded as Præfect of the first Ala of Asturians. With others we have accepted this view, but it has always appeared strange to us that *Felix* had neither *prænomen* nor *nomen.* Now it seems most probable that *Felix* is used as it is in n. 943, and Baxter's reading—ALFENO SENECIONE is not so unlikely. What the letters at the side were that were crowded out can scarcely be conjectured with probability; they may have been something like *Curam Agente*, or *Curante*, *Præfecto.*†

With regard to the "Notes and Emendations," we cannot refrain from expressing our opinion that they are not what might reason-

* See also Eckhel, viii, 11.

† There is a strange mistake relative to this Præfect in Dr. Bruce's General Index to the *Lapidarium Septentrionale*: "Alfenius Senicio, Prefect of the Ala Prima Asturum, 31; his titles on other inscriptions, 31."

ably be expected in a work of this class. We subjoin a few examples of the omissions, some of which, we regret to say, are not trivial.

In n. 51 we have the following inscription :—

Ɔ) PP

On this Dr. Bruce remarks :—

"The stone possibly has some relation to the century of Peregrinus." [See n. 49.]

And yet on n. 140, bearing a similar inscription, the same Editor remarks :—

"Dr. McCaul suggests the reading *Centuria Primipili.*"

Of the correctness of this suggestion there can be but little doubt. See nn. 127 and 459.

In n. 150 a sculpture, found at *Cilurnum*, Chester, is figured; and the following are Dr. Bruce's observations on it :—

"Horsley, who was the first to publish this 'coarse though curious sculpture,' thought, at one time, that it was sepulchral in its character. Afterwards he adopted the opinion that it was mythological. The seated figure he took to be a female, 'holding a key in her right hand, and a thyrsus or hasta in her left;' the other part of the stone he describes as representing 'a human figure lying along, and a lion, with one of his paws, gently raising up the head.' 'This sculpture,' he adds, 'may very probably represent Cybele, for both the key and the thyrsus were her symbols, by one of which was denoted the opening of the earth, and by the other the producing of wine.' 'And if it be Cybele who is here represented, the lion that is gently raising up the head of the human figure, may signify the revival of man by the spring, and produce of the earth, or by the wine and fruits it affords; for the lion does not seem to be in a devouring posture, but rather guarding or cherishing.'

"The Rev. John Hodgson properly dismisses the idea that the seated figure was a female. He takes it to be 'a figure of Mithras seated on a bench, and having a flag in one hand, a wand in the other, and on his head the Persian tiara.' 'And,' he adds, 'I would hazard a conjecture that the whole relates to the Mithraic rites called Leontica; for the lion in the zodiac of the ancient heathens stood for Mithras, or the Sun, which threw its greatest heat upon the earth during its course through the constellation Leo, from July 24 to the same day of August.'

"There is yet another explanation of the sculpture, one that is simpler and more probable than either of these. It represents a scene in the amphitheatre. The presiding officer in his robes sits upon a chair of state. The staff of authority is in his left hand, and in his right is a flag to direct the sports. A contest between a gladiator and a lion has been going on, in which the man has been worsted. Probably the right-hand portion of the stone, which is wanting, contained a corresponding representation. It is not probable that so important

a station as Cilurnum would be destitute of an amphitheatre for the entertainment of the military. On the bank of the river, between the station and the 'Oxclose,' there are some semicircular recesses well adapted for the formation of an amphitheatre. The stone before us was found in this locality; when entire it would be a fitting head-stone for the principal entrance. For the view here given the author is indebted to Signor Montiroli, of Rome, the designer of the internal decorations of Alnwick Castle."

In the *Canadian Journal*, Vol. XII, 1873, p. 2, we find the following note referring to these observations :—

"Many memorials of the worship of Mithras have been found in Britain, and some of them are symbolical. In the *Lapidarium Septentrionale*, n. 150, a scene of this class is represented. A lion stands over a human figure lying down, with one paw raised to the head of the figure, and at the side is another human figure seated, with apparently a flag in one hand and a wand in the other. Mr. Hodgson regards the seated figure as representing Mithras, and adds, 'I would hazard a conjecture that the whole relates to the Mithraic rites called Leontica.' This conjecture is certainly well-founded, for this scene of a lion standing over a human figure lying down is often represented on Mithraic stones. See Mr. King's Gnostics, Plate II, 1, and XI, 4. The term *Leo* was the designation of a person admitted to the fourth step among Mithraists, and part of the ceremonial of initiation was for the neophyte to simulate death.

"The seated figure I take to be a representation of the officer under whose supervision the candidates for the fourth step passed through the preliminary rites; and I identify him with the *pater leonum*, or, it may be, *pater patrum* or *pater sacrorum*, under whom *prosedente* the ceremonial took place. See Henzen, nn. 5846, 6038, 6042*a*, 6042*b*. Part of a similar figure seems to be on a fragment figured n. 68, *Lapidarium Septentrionale*. The *pater patrum* may be regarded as=Grand Master, or his deputy, *pater leonum*=Master of the Lion Lodge, and *pater sacrorum*=Chaplain. In n. 65 of the same work, an altar is figured, bearing an inscription DEO, 'To the God.' Dr. Bruce properly refers it to Mithras, but has not noticed that the palm-branch on each side, with the wreath or crown in which the letters DEO are cut, are symbols of INVICTO, a term frequently applied to this god. We have also an example of the single word INVICTO, 'To the unconquered one'—denoting Mithras. See Henzen, n. 5846."

And yet there is no mention in the "Additions, Notes, and Emendations," in Part V., of this most satisfactory interpretation of the scene represented in the sculpture.

Again, we have another omission of a similar kind; in n. 270, a sculpture, found at *Vindolana*, Chesterholm, is figured, and the following are Dr. Bruce's observations on it :—

"This is a triangular stone, of which the left-hand corner has been broken off and lost. The carving has been rudely executed. Hodgson says that when he first saw it, it was in the wall of the farm-house of Low Foggerish, which is about half a mile south of Chesterholm.

"The carvings on this stone are probably Mithraic emblems. It were a vain task to attempt to unveil the enigma concealed under each. Probably the original upholders of these ancient mysteries could not themselves give an intelligent account of them.

"The Rev. John Hodgson has attempted to throw some light upon this obscure combination of figures; and as the reader may wish to have his observations at hand, the following passage is introduced from the *Gentleman's Magazine*, as referred to above:—"Here we have the umbilicated moon in her state of opposition to the sun, and the sign of fruitfulness. She was also, in the doctrines of Sabaism, the northern gate by which Mercury conducted souls to birth, as mentioned by Homer in his description of the Cave of the Nymphs, and upon which there remains a commentary by Porphyry.

"The cross in Gentile rites was the symbol of reproduction and resurrection. 'It was,' as Shaw remarks, 'the same with the ineffable image of eternity that is taken notice of by Suidas.'

"The crescent in Gentile rites was the lunar ship or ark that bore, in Mr. Faber's language, the Great Father and the Great Mother over the waters of the deluge; and it was also the emblem of the boat or ship which took aspirants over the lakes or arms of the sea to the Sacred Islands, to which they resorted for initiation into the mysteries, and over the river of death to the mansions of Elysium.

"The cockatrice was the snake-god. It was also the basilisk or cock adder. '*Habet caudam ut coluber*, vero corpus ut gallus.' The Egyptians considered the basilisk as the emblem of eternal ages. What relation had this with the Nehustan or Brazen Serpent, to which the Israelites paid divine honours in the time of Hezekiah?

"What is the circle with the seasons at the equinoxes and solstices marked upon it?—the signs of the four great Pagan festivals celebrated at the commencement of each of these seasons?

"I am not hierophant enough to unriddle and explain the hidden tale of this combination of hieroglyphics.

"This bas-relief seems to refer, in some dark manner, to matters connected with the ancient heathen mysteries."

In the *Canadian Journal*, Vol. XIV., pp. 1–8, the two principal objects are explained so as to leave no doubt of their meaning, and of the others a probable solution is given.

"On comparing the two representations of the carvings on the stone, it appears that the twisted, snake-like form of the tail of the bird, as given in the sketch supplied by Mr. Hodgson, is not observable in Dr. Bruce's wood-cut; nor can there be, in my judgment, any reasonable doubt that the bird was intended to represent a cock. As to the circular object in the right-hand angle, with intersecting lines, it seems to me to be nothing more than the representation of an ordinary loaf of ancient Italian bread, which, we know, was thus divided into four parts —*quadrae*. Thus we have in Virgil, Æn. vii, 114, 115—

Et violare manu malisque audacibus orbem
Fatalis crusti, patulis nec parcere quadris.

And in his Moretum, vv, 48, 49—

Lævat opus, palmisque suum dilatat in orbem
Et notat, impressis æquo discrimine quadris.

Quadra thus may be used here for *quarta*, and the two objects—the *gallus* (standing for *Galli*), and the *quadra* (standing for *quarta*)—may symbolize the *Gallorum Quarta*, the 4th cohort of Gauls. Now, from the *Notitia* we learn that this cohort was stationed in Britain, "*per lineam valli*," at Vindolana, and two altars (with a commemorative slab) erected by commanding officers of this cohort (see *Lapidarium*, nn. 244, 251, 262), that were found at Chesterholm, identify the places. So far there can, I think, be little or no doubt of the meaning of the symbols."

"The object regarded as a cross may be a monogram for IT = *iterum*, the tall I being crossed or the T elongated; and suggest, as the most probable solution consistent with this view, that the sun and moon are used, as the heads representing them are on a unique coin of Postumus, described by Eckhel, vii, p. 441, with the following comment:—*Solem et Lunam æternitatis esse symbola satis hactenus vidimus. In præsente numo aliam allegoriam constituunt, nimirum præclaris suis factis, inclarescere Postumum, et esse late conspicuum æque ac solem et lunam astra lucentissima.* Postumus held the office of Governor of Gaul, to which he had been appointed by Valerian, when he took the imperial title, and he entered on his second Consulship in that Province. According to this view the sun, moon and monogram stand for Postumus Augustus, Consul for the second time, *i.e.*, A.D. 259. This solution has the additional recommendation of accounting in some degree for the use of symbols, for in that year Valerian and Gallienus were really the Emperors, and Æmilianus and Bassus the Consuls, whilst Postumus was but a usurper of only one year's standing, not sufficiently firmly established to warrant the safety of recognizing him in the dignities that he had assumed. The 1st cohort of Dacians in Britain adopted the title *Postumiana*, as we know from altars found at Burdoswald, = *Amboglanna*, in Cumberland (see *Lapidarium Septentrionale*, nn. 359, 360), but no year is given for this adoption, and I suspect that the epithet was not publicly used before at least A.D. 262, when Postumus celebrated his *ludi quinquennales* and took the title *Germanicus Maximus*. According to this view, then, the objects carved on this stone may be regarded as symbolical of some such inscription as POSTVMO AVG·COS· II·COH · IIII · GALLORVM."

In n. 537, an altar, that was supposed to be lost, is figured. It bears the inscription:—

CONSERVATO
RI PRO SALV
TE M ** REL
ANTONINI
AVG * * IT MAX
* * * * * * * * * *
* * * * * * * * * *
* * * * * * BENS *
OB REDITV

Dr. Bruce expands it:—[*Iovi Optimo Maximo*] *Conservatori pro salute Marci Aurelii Antonini Augusti Britannici Maximi* ——— ——— *libens merito ob reditum*—and offers the following remarks:

"The formula at the close of the inscription, *libens merito ob reditum*, may refer to the emperor for whose well-being the altar was reared, or to the dedicant after his own return from some expedition or journey. It seems, however, most natural to regard the words as relating to the safe return of the emperor.

"The emperor, in acknowledgment of whose safe return the altar was raised, was probably Caracalla. As there is no mention on it of Severus or of Geta, we may safely infer that the occasion referred to was not the return to York from the Caledonian expedition, but the safe arrival of the emperor at Rome; and that the altar was not carved until after the death of Geta. As the brothers did not leave Britain until the summer of A.D. 111, and the younger was murdered in February, 112, the news of the arrival of the emperors in Rome would not long anticipate the tidings of Geta's death. The sixth and seventh lines of the inscription have been intentionally removed.

"They no donbt contained the name and office of the dedicator, who, notwithstanding this piece of flattery, seems subsequently to have incurred the tyrant's wrath. Neither friend nor foe was safe against his capricious cruelty.

"At High Rochester we shall presently encounter a slab bearing a dedication to Caracalla, when he was in possession of the tribunitian power for the nineteenth time (A.D. 216). From this inscription the name of the imperial legate and propraetor, who had caused its erection, has purposely been removed. He was probably the person who dedicated the altar we have now been examining."

Dr. Bruce's reading of the inscription is different from that of Hübner, who himself saw the stone. If IT MAX be correct, we may supply BR *(i.e., Britannici Maximi)*, and it may be assumed that the Emperor was Caracalla, when he was sole Augustus. But even on this assumption, Dr. Bruce's view of the occasion of the erection of the altar seems highly improbable. It would be better to refer the *reditum* to "the return" from Gaul, probably in January, 214 A.D. See Clinton's *Fasti Romani*, p. 224. But I much prefer interpreting *reditum* as "the return" of the individual, whose names are erased. It may be proper to notice that such violations of syntax as *ob reditu, pro victoriam*, &c., are sometimes found, and that the dates in Dr. Bruce's remarks should be A.D. 211 for "A.D. 111,"† and A.D. 212 for "A.D. 112."

In n. 551, an altar found at *Bremenium* (High Rochester), is figured. It bears the following inscription:—

† Even in "Notes and Emendations" mistakes have been overlooked. In "Page 130, n. 253," we have *Postumus* for *Postumius*, and in "Page 335, n. 643," *Maximus* occurs twice instead of *Maximinus*.

D · R · S ·
DVPL · N · EXPLOR
BREMEN ARAM
INSTITVERVNT
NEIVSC · CAEP
CHARITINO TRIB
V S L M

Dr. Bruce expands it thus:—"*Deæ Romæ sacrum. Duplares numeri exploratorum Bremeniensium aram instituerunt numini ejus curante Cæpione Charitino tribuno. Votum solverunt libenter merito.*" And offers the following observations:—

"The difficult points in the inscription are the D · R · S · of the first line, and the NEIVS of the fifth.

"Camden did not hazard an opinion about the first line. Horsley proposed *Deæ Romæ sacrum,* observing that it is well known 'that they made a goddess of Rome, and erected altars and temples to her.' He instances the grand altar found at Maryport, dedicated *Genio Loci, Fortunæ reduci, Romæ æternæ,* &c. The lines of Martial show in what estimation she was held:—

'Terrarum dea gentiumque Roma
Cui par est nihil, et nihil secundum.'

— Epig XII, viii.

"Prudentius informs us of the nature of the worship which was offered her:—

'Delubrum Romæ (colitur nam sanguine et ipsa
More Deæ) nomenque loci ceu numen habetur.'

— Contra Symm., lib., I.

"The coinage of the empire renders us familiar with her figure. She is usually represented as a female, of proud bearing, clad in military vestments, seated upon a pile of spoils. On her head she wears a helmet; when other nations are personified, the head is usually left bare.

"Horsley's expansion has not been universally acquiesced in. Muratori explained D · R · *Dianæ reginæ.* Orelli is not sure about *Deæ Romæ,* and suggests, as worthy of consideration, *Deæ respicienti, i.e., Fortunæ,* and *Deæ reginæ.* Professor Henzen, in the Index to his volume in continuation of Orelli, gives the preference to *Dianæ* vel *Deæ reginæ.* Dr. McCaul says: 'I am inclined to suggest *Dianæ reduci,* as more appropriate to the circumstances.'

"As to the other doubtful point, NEIVS, Camden and Horsley expand it by numini ejus; others, amongst them Hagenbuch and Dr. McCaul, prefer *nomine ejus,* in reference to the *numerus.*"

In Prof. Hübner's n. 1037, the same inscription is given, with the following expansion and notes:—

"*D(eæ) R(omæ) S(acrum), Dupl(arii) n(umeri) explor(atorum) Bremen(iensium) aram instituerunt n(umini) ejus, C. Cæp(asio ?) Charitino trib(uno). V(otum s(olverunt) l(ibentes) m(erito.)*"

"*N (omine eius) i.e. numeri proposuit Hagenbuch apud Orellium; sed tum tribuni nomen casu primo positum esse deberet.*"

We prefer *nomine ejus* to *numini ejus*, *Cæpario* to either *Cæpasio* or *Cæpione*, *curante* to *Caio*, or if the latter be adopted, either *solvente*, forming with *Charitino*, &c. an ablative absolute, or *solventes*, agreeing with *Duplarii*, to *solverunt*.

Prof. Hübner's *tribuni nomen casu primo positum* will yield no Latin construction, unless we expand S *solvit*.

In n. 576, a stone is figured that bears the following inscription :—

P · AEL · ERA
SINVS · TRIB.

Dr. Bruce expands it thus:—"*Publius Ælianus Erasinus tribunus.*"

Independently of the objection which may be urged against *Ælianus* as a *nomen*, this Tribune is probably the same mentioned in n. 571, on a stone found at the same place, whence it appears that we should read *Publius Ælius Erasinus Tribunus*. Prof. Hübner states this conjecture in his *Additamenta*, p. 312, but Dr. Bruce does not notice it in his Appendix.

In nn. 906, 907, two stones, one of which was certainly, and the other probably, found at Papcastle, are figured. The first bears the inscription :—

* NSIVM * * * *
EX · V · P · XIIII K
ETXIII KAL NOV
V S L M
ORDIANOETPONPEIANOC.

Dr. Bruce expands it thus:—["*Cuneus Frisionum Aballave*] *nsium ex voto posuit quarto decimo Kalendas et tertio decimo Kalendas Novembres votum solvit libens merito Gordiano iterum et Pompeiano Consulibus*—and offers the following observations :—

"Gordian III was consul for the second time, having Pompeianus as his colleague, A.D. 241.

"Why two days are named in this inscription, 19th and 20th of October, is not known; perchance the inscription may have been prepared to commemorate the opening of a temple, and the ceremonies may have lasted that time."

The second bears the inscription :—

* * * II * * * *
EGAVGIN C *
NVM FRISION
VMABALLAV
ENSIVM * * * *?
P XIIIIKALETXIIIKA *
NOV · GOR · II ET POMPEI * *
COS · ET ATTICO ET PRE * *
XTATO COS · V · S · L · M

Dr. Bruce expands it thus:—"*Legatus Augusti? in cuneum Frisionum Aballavensium Philippianum? quarto decimo Kalendas et tertio decimo Kalendas Novembres Gordiano iterum et Pompeiano Consulibus et Attico et Pretextato Consulibus votum solvit libens merito,*" and offers the following observations:—

"At the end of the first line there seems to be a C, though it is somewhat difficult to distinguish it from a conchoidal fracture of the stone in this part. Believing the C to exist, we have read *cuneum* instead of *numerum* both in this inscription and the last. Mr. Watkin, in *Archæological Institute Journal*, has done so before us. The occurrence of [ABALLAVE] NSIVM in the last inscription, and of CVNEVS FRISIONVM ABALLAVENSIVM in this leads to the grave inquiry, is Papcastle the ABALLABA of the *Notitia?* High Rochester is believed to be the BREMENIUM of the Romans, because altars have been found there erected by a *Numerus exploratorum Bremeniensium;* on the same principle we must identify *Aballaba* or *Aballava* with Papcastle. Every effort having failed to identify, in the precise order of sequence, the stations on the Wall west of AMBOGLANNA with those named in the *Notitia*, we are compelled to look for them elsewhere.

"Mr. Watkin, Dr. McCaul, and Professor Hübner, all yield to the argument we have stated. When the *Notitia* was compiled, ABALLABA was the headquarters of the 'Præfectus numeri Maurorum Aurelianorum.'

"The latter part of the fourth line of this inscription has been purposely obliterated. We thought, however, that we could read beneath the obliterating marks PHILIP, and there is part of another P at the beginning of the next line. The *cuneus* has perhaps been allowed to use the epithet of *Philippianus*, and upon the overthrow of his dynasty in A.D. 249, it has cast it off with scorn. The only doubt we have about this reading is that Philip does not appear to have become a man of importance until A.D. 243, when he succeeded Timesitheus as prætorian prefect. This altar bears the double date of A.D. 241 and A.D. 242, on the first of which years the consuls were Gordianus for the second time, and Pompeianus, and in the second, Atticus and Prætextatus. Philip was slain A.D. 249."

The same inscriptions are given by Prof. Hübner, nn. 415, 416. He reads the M in n. 906 as IV, and expands the inscription

thus:—"*Numerus Frisionum Aballave*]*nsium? ex v(oto) p(osuit) XIIII et XIII Kal(endas Nov(embris. (Votum) s(olvit) l(ibens) m(erito)* [*G*]*ordiano II et Ponpeiano Co(n)s (ulibus).*" In n. 907 the fragment of the first line is read by him as V, the second line as LEG · AVG · IIVI, and the third line as NVM · FRISION. On the inscription he offers the following observations:—"V 3, [4]. *De Aballava dixi in præfatione ad vallum Hadriani,* 4 [5]. *In fine litteræ quinque aut sex erasæ sunt. Erat fortasse cognomen numeri aliquod erasum postea nescio qualem ob causam.* 5 [6]. *Cur dies illi duo mentis Octobris hic et in titulo n.* 406 [*n.* 906] *celebrentur ignoramus.*"

The obscure parts of the inscription n. 907 are (*a*) the remains of the letters in the first line, the characters (*b*) after G in the second line, (*c*) before VM in the third line, and (*d*) after VM in the fifth line. As to (*a*), nothing feasible can be suggested. In the Journal of the Archæological Institute, XXVIII, p. 131, Mr. Thompson Watkin proposes IN CVNEVM as the reading of (*b*) and (*c*), and this is adopted by Dr. Bruce. With this opinion we cannot agree. The words *in cuneum* in this position yield no sense, and as we know from the *Notitia* that there was a *numerus* at *Aballava*, we might expect a *numerus* here. We ourselves, however, have nothing probable to offer in explanation. LEG · AVG = *Legatus Augusti* we regard, as designating the Legate of a Legion, not the Governor of the Province. If it had been the latter, we should most probably have had after LEG · AVG, some *sigla* of his titles, such as PR · PR. In (*d*) Dr. Bruce reads PHILIPP = *Philippianum*; but this reading must be at once rejected, for most certainly this epithet was not used by any military body during the life of Gordian, and he was not killed before A.D. 244. His view, however, that the erased letters formed some epithet derived from an Emperor seems very probable. On the difficulty, noticed by Prof. Hübner and by Dr. Bruce, of accounting for the days *XIIII & XIII Kal. Nov.*, *i.e.*, October 19th and 20th, we would suggest that they may have been devoted to *ludi* in honor of *Sol.* In the city these *ludi* occupied four days in October, from the 19th to the 22nd. It may also have been that the *armilustrium* was celebrated on the first of these days. See *Fasti Philocali* and *Commentarii Diurni.* It should also be borne in mind that in A.D. 241 the marriage of Gordian and the preparations for the Persian war took place. The inscriptions, in

themselves notable, are rendered more remarkable by the questions which they suggest relative to the topography of Roman Britain. The first printed notice that we have seen of such questions was in this journal, Vol. XII, 1870, p. 131.

"Another altar has more recently been found, bearing a similar date, and dedicated by a *Numerus Frisionum Aballavensium;* a designation which it is exceedingly difficult to comprehend. The difficulty, to which Dr. Bruce refers, is not as to the meaning of the words, for they plainly signify 'the detachment of Frisiones stationed at Aballava.' The *Frisii*, or *Frisiones*, regarded by some as identical with the *Frisianones*, or *Frisiavones*, or *Frisœvones*, or *Frixagi*, are well known as a portion of the Roman auxiliary troops in Britain. The first cohort was there in A.D. 106, in A.D. 124, and at the beginning of the fifth century, as appears from the diplomas of Trajan and Hadrian, and from the *Notitia*. *Aballava* is also well known as a place in the island, although there are various opinions as to the identification of the site. In the *Notitia*, a detachment of Moors, called Aurelian, is said to have been stationed there. Nor is there any difficulty as to the use of *Aballavensium*. We have similarly *Numerus exploratrrum Nemaningensium*, Henzen's n. 6731, *Numerus Brittonum Triputiensium* Orelli's, n. 1627, and *Numerus exploratorum Bremeniensium*, Bruce's Roman Wall, 3rd ed., p. 315. See Brit. Rom. Inscrip. p. 139. Dr. Bruce's difficulty as to the inscription, I apprehend, is that if the same principle, by which High Rochester has been recognized as *Bremenium*, on account of BREMEN and BREM in inscriptions on altars found there, be applied in this case, we must identify *Aballava* with Papcastle. If this be adopted, the views as to Brampton and Watchcross must be abandoned, and great latitude must be given to the terms *per lineam valli* in the *Notitia*. For the present it must suffice to have noticed the difficulty. At some future time I hope to examine the general question relative to the stations after Amboglanna, and to offer some suggestions that may, perhaps, be useful, even though in some cases expressed doubtfully, as I have not the advantage of personal knowledge of the localities."

But the first clear statement of opinion on the subject is given by Mr. W. Thompson Watkin, in his article "on the tenth iter of the British portion of the Itinerary of Antoninus," in the Journal of the Archæological Institute, XXVIII, 1871, p. 131:—

"The *successive order* of the *Notitia* garrisons, broken off at Lanercost, seems renewed at Papcastle, Moresby, and Ellenborough,"

In a note on this page, Mr. Watkin refers to the similarity of Dr. McCaul's views as expressed in this Journal, in Part XIII. The next notice that we have seen of this question is in a note to p. 212 of the *Lapidarium Septentrionale*, published in the close of 1872 or the beginning of 1873:

"Dr. McCaul thinks that the compiler of the *Notitia* ceases after AMBOGLANNA to give the stations of the Wall in regular order.

"If the proper order was to be abandoned, this seems the fitting place for doing so, as the Maiden way, coming from the south to MAGNA, and continued northwards from this station, brings AMBOGLANNA into direct intercourse with the contiguous forts in all directions."

Subsequently, in 1873, Prof. Hübner's *Inscriptiones Britanniæ Latinæ* appeared, in which he identifies Maryport (otherwise called Ellenborough) with *Uxellodunum* (otherwise called *Axelodunum*), regards Papcastle as *Aballava*, and infers "*stationes Notitiæ omnes inde ab Aballaba numerari ordine nobis adhuc ignoto.*" We have thought it necessary to mention the facts that are here adduced, as the remark in the *Lapidarium*—

"Mr. Watkin, Dr. McCaul, and Prof. Hübner, all yield to the argument we have stated"

might be misinterpreted as indicating that Dr. Bruce had ever advocated these views before they were advanced by the above-named enquirers, or that he had in any way led to the inference.

In n. 725, Dr. Bruce gives the following inscription :—

D + M

CONDATI
ATTONIVS
QVINTIANVS
MEN EX CC IMP

EX IVSSU LL A (?)

His expansion is :—"*Deo Marti (?) Condati Attonius Quintianus mensor ex ducenario Imperatoris ex jussu lætus libens merito.*"

And the following are his observations :—

"The expansion of the two last lines is that which the editor is informed Professor Mommsen long ago proposed, and which Dr. McCaul has also given in the *Canadian Journal.*

"Attonius Quintianus was a *mensor*, having previously been a *ducenarius Imperatoris.* Both of these terms admit of various applications. In a civil sense, the *ducenarii* were imperial procurators who received a salary of two hundred sestertia; in a military sense they were officers who commanded two centuries. The *mensores* were surveyors employed in various capacities; some had charge of measuring the space to be occupied by the tents in the camp, others provided quarters for soldiers on a journey; in a civil sense they were measurers of land, or of corn taken to the public granaries, or architects.

"See Smith's Dict. Ant.

"Probably the last letter on the last line was M, *merito*; if, however, it be correctly read, the A stands for *animo.*"

Dr. Bruce, we think, should have given the credit which is due to Dr. McCaul for his interpretation, especially as he refers to the *Canadian Journal*, Vol. X, 1865, p. 96, in which it was first published, and as he evidently does not know (nor do we either) whether Professor Mommsen ever published it at all. A more remarkable example of this omission is to be found in the following, n. 656 :—

* * * * * * * * * * * * *
LEG · A * * * * * * * *
Q · CALPVRNIVS
CONCESSINI
VS · PRAEF · EQ
CAESA · CORI
ONOTOTAR
VM · MANV PR
AESENTISSIMI
NVMINIS DEI VS

Dr. Bruce's expansion is :—"*Legato Augusti* [*proprætore*] *Quintus Calpurnius Concessinius præfectus equitum cæsa Corionototarum manu præsentissimi numinis Deo (?) votum solvit.*"

And the following are his observations :—

"This inscription has given antiquaries much trouble. The simplest explanation of it is that which has been suggested by Professor Mommsen, and which is adopted in the expansion. It requires, however, the alteration of *dei*, in the last line, to *deo*. According to this view, the altar was reared by Concessinius, after having slain a number of the Corionototæ (a British tribe not elsewhere mentioned), to the god by whose presence and effectual help he had prevailed. The top of the altar, which has been broken off, no doubt contained the name of the god and the imperial legate."

Now this same solution of the difficulty was published in this *Journal*, Vol. IV, 1859, p. 175, and again in *Britanno-Roman Inscriptions*, p. 142. Dr. Bruce indeed refers to the latter, but he omits all notice of priority. And yet it is well understood that publication is the only reliable test of priority among authors. It sometimes happens that the same solution presents itself to the minds of different enquirers, but the credit is certainly due to him who first publishes it. It is true that neither does Professor Hübner in his work, *Inscriptiones Britanniæ Latinæ*, notice the previous suggestion in these pages of the same interpretations as those attributed to Prof. Mommsen, but it must be borne in mind that Professor Hübner had not consulted, nor perhaps seen, the *Canadian Journal*, whereas Dr.

Bruce frequently refers to it, and often uses its suggestions; as in a similar way, the omission by Professor Hübner, of reference to *Britanno-Roman Inscriptions,* is plainly due to his having read only parts of that volume, but the same excuse cannot be pleaded in Dr. Bruce's behalf, as he was evidently familiar with the whole of it.

The omissions in the "Additions, Notes, and Emendations," of which we have given specimens, are greatly to be regretted, as the volume is remarkably attractive, and affords the distant enquirer an excellent opportunity of inspecting well and faithfully-executed copies of the originals. In this respect it is far superior to Professor Hübner's book, which has almost no illustrations; but the latter, it must be admitted, is better adapted for the use of the student, even in the limited range to which the *Lapidarium Septentrionale* is confined. Dr. Bruce's diligence and fidelity deserve the highest commendation (especially when we look back on the successive editions of "The Roman Wall"), and his editorial labors have been admirably seconded by artistical and typographical skill, but he has not produced a volume that can compete with foreign works in those scholarly characteristics that mark the successful pursuit of Latin Epigraphy.

THE PRIMITIVE HISTORY OF THE IONIANS.

[*Continued from page 431.*]

BY JOHN CAMPBELL, M.A.,

Professor of Church History, &c., Presbyterian College, Montreal.

V.—ITALIAN CONNECTION.

Onnos or An-ra of Egypt, Oannes or Anu of Babylonia, Ion or Deion of Greece, is the same as the Latin Janus. Like Ion, he is reported to have been the son of Creusa the daughter of Erechtheus; and, as bearing the name Quirinus, he should have relations with the family of Romulus, who, like Erechtheus, designates Jerachmeel. As representing, in his double aspect, the union of the tribes governed by Romulus and Tatius, and thus assuming the role of Mithras the mediator, we shall find that his Italian story bears out the facts presented in other legends concerning the family of Onam. The association of the fish with Janus in the person of his sister or wife Camasane, who, like Atargatis, was half woman and half fish, has led many writers on comparative mythology to identify him with Oannes and other fish-gods.[140] He has also been regarded as an Apollo or god of the sun, by ancient mythologists. As the porter, holding the key and bearing the name Thuræus, he relates at once to Tentyra and Athor or Atargatis and to Abi-Shur his grandson. He has also been identified with Œnotrus, a name that suits better his grandson Jonathan.[141] Panda, the goddess of the gates, and Pandosia, a colony of the Œnotri, exhibit the same form as we have found in Pandion, a Jonathan with the prefix of the Coptic article. A similar form appears in Fontus, who is called a son of Janus, but who is really Jonathan his grandson. Œnotria may designate the land of the vine, and still not be discordant with the legends of the Onites, since the mythology of Greece has exhibited an important and repeated wine-connection.[142] Entoria, who is associated with Janus,

[140] Creuzer, Guigniaut, &c.

[141] Banier's Mythol. & Fab. explained by history, London, 1740, ii. 268.

[142] Oinos may have derived its name from Onam.

derived her name from the same original as Tentyra, Tyndareus, Onderah, Œnotrus, etc. As we have found that a daughter of Onam, as Onnos, Oannes and Deion, married Achuzam as Aches, Hea and Ixion, so, Latin mythology unites a daughter of Janus to Picus, a Coptic form of the name of the same Ashchurite.[143]

The family of Jadag seems to be the most important of the two families of Onam in the Latin or Italian traditions. Jadag himself is Æthex, the son of Janus, from whom the Æthices of Thessaly are said to have descended. Ion also had settled among the Perrhoebii of Thessaly, and thence Janus is said to have come to Italy. I have already indicated the strong Onite traces found in this Greek region. Another name for Jadag is, I am convinced, the Etruscan Tages, the son of Genius, who appeared to Tarchon, teaching him divination, and to whose oracles or books reference is made by various writers. The form of Evander's name would favour his being the same as Ahban or Abn-ra, but several facts concerning him combine to show that, although he brought the worship of Pan or Ahban to Italy, he is rather Jonathan, the son of Jadag, Tages or Æthex. Arcadia, his original home, simply denotes his Jerachmeelite descent;[144] but Pallantium, the town in which he was born, and Pallanteum, the city which he founded in Italy, lead us to the name of Pallas, who is called his son, and thus to Peleth, the son of Jonathan. The Aventine, on which he was worshipped as a god, sufficiently shows that the final *r* is a remnant of the Egyptian solar termination *ra*. The mother of Evander, named Carmenta, is called Tegean. I do not know who Jadag married, but Jonathan himself was united to a princess of the house of Tekoa, a daughter of Achashtari. With the Palatine hill, we find not only Pallas and his father Evander associated, but also Castor and Pollux, and Pallatia, the wife of Latinus. In the Greek connection we have found it probable that Pollux or Polydeukes and Pallas or Peleth, are the same, Castor being Achashtari, his grandfather on the mother's side. Latinus also, whom we have supposed to be Othniel, as L-Atin, is made the husband of Pallatia, in strict

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143 Picus, as I have shown in a former paper, sometimes denotes Achuzam, as Phix and the eponym of Phacussa, sometimes Coz the son of Ammon, the true Bacchus and father of Œnopion, who married the granddaughter of Achuzam.

144 Thucydides and other writers give the Italians an Arcadian origin. Arcas, who is made son of Orchomenos, is really the same, both names denoting Jerachmeel. The Arcadian Azanes are the descendants of Ozem, son of Jerachmeel. The Pan who is called brother of Arcas must, I think, be Onam himself, his son. Aventinus is the name of an Italian king.

accordance with the inductive reasoning that has given to Othniel an Onite princess in marriage. She is also called Pallanto and Palatua. I have already thought it probable that Othniel was united to a daughter of Jonathan, who might very properly bear a name similar to that of her brother, or at least be commemorated by such a name. Pallas, the son of Evander, is said to have been killed by Turnus, and he, as the son of Faunus, Pan or Ahban, must be Harum, the father of Aharhel. The only other geographical connection of Peleth to which I direct attention is one already alluded to. Pola, the town of fugitives spoken of by Callimachus in connection with the Argonautic expedition, is undoubtedly a transplanted Beth-Palet, the house of flight, from the south of Palestine.[145] It is worthy of note that the Absyrtides, including Absorus, are near at hand, and that Epidaurus, like them commemorating Abishur, with Meleta or Meleda, similarly commemorating his son Molid, are situated along the same coast.

Turning with these memorials to the family of Shammai, we find his own name in Cameses, whom Macrobius gives as a king of Italy and contemporary of Janus.[146] Camasenus and Camasena are also made the brother, and sister or wife of Janus. I have already mentioned their fish relations in etymology with Oannes, An, and other representatives of Onam. The initial *S or Sh*, of Shammai, is in their case rendered by what was, at least in the Greek kamesenes, a hard sound, just as Æolian Cyme represented a softer Samos. Cumæ is an Italian geographical name, reproducing Samos and Cyme. It was a Greek colony, and its founder is called Hippocles, who must, I think, stand for Abichail, the wife of Abishur, she being, as Amalthæa or Capella, the Sibyl of Cumæ. Apollo was appropriately worshipped at Cumæ. I have not found Abishur appearing with any prominence in Italy and its legends, unless it be as Jupiter Pater and Lapis.[147] His wife, Juno, has frequently been associated with Janus, and may help to point out the connection of the king of the

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[145] Callimachus *apud* Strab. i. 2, 40.

[146] Macrobii Saturnalia, i. 7.

[147] Janus is called Janus-pater. In the Indian mythology Dyauspitar connects with the family of Indra. Tyr, the German sun god, has been made the same as Zeus and Jove by Grimm; and both Indra and Tyr will appear in the sequel to be of the family of Onam. It seems strange to find Absyrtus the unfortunate and the king of the gods in the same person, but the same reasoning which would lead to the rejection of the evidence would remove Julius Cæsar from the page of history, and deny that the enslaver of Israel, who was drowned in the Red Sea, was made a god during his life-time by the Egyptians.

gods with the family of Onam. Entimus or Antiphemus, who is said to have led a colony from Lindus, in Rhodes, to Gela, in Sicily, is, I think, Nadab; and Antium, in Latium, may probably be a reminiscence of the same hero of the Sun. As for Ahban, the son of Abishur, we find him in the god Hebon associated with Bacchus, as he is with Coz, the son of Ammon, and bearing the bull's head of his father, Taurus or Abi-Shur. The oracle of Aponus, with fountains recalling Daphne; Hipponium or Vibona, founded by the Locri; and the range of the Apennines, a western Lebanon, are Italian traces of the line of Ahban. I have already identified him with Faunus, and his son Harum with Turnus, the son of Faunus. The few Italian reproductions which I have noted of the line of Ahban, are as follow:—

Orcus, Uragum, Romulus = Terra = Sabus.
|
Janus,
Œnotrus.

Cameses. daughter = *Picus*. Æthex, Tages, Dis.

Entimus, Antiphemus. Jupiter = Capella, ——. Evander, Aventinus.
| | Venilia?
|

Alladius. ——. Hebon, Faunus. ——. Pallas, Pluto, Pollux. ——.
|
Turnus.

VI.—CELTIC AND GERMANIC CONNECTIONS.

The mythologies or legendary histories of the Celtic and Germanic peoples afford ample material for tracing the families of Onam, but, as in the case of all that have preceded, lack of time to pursue my researches has hindered me from doing more than to indicate, by a few examples, the wide-spread influence exercised by this ancient stock. The Irish Tuatha-de-Danans are clearly the posterity of Onam. I am perfectly willing to admit that connections based upon mere verbal similarity are of the most deceptive character; but when, in a single family, I can discover, along with other attributes, a series of names showing intimate resemblance to those of notable persons in the line I seek to identify, I am compelled to ask a reason for this similarity, and, if no better can be given, to refer them to the same original. This is peculiarly the case with the family under consideration. The Tuatha-de-Danans[148] were not only

[148] Keating's General History of Ireland, Dublin, 1865, p. 86. See also General Vallancey's Specimen of a Dictionary of the language of the Aire Coti or Ancient Irish, Dublin. 1804.

notable magicians—a character which has already more than once been attributed to members of the Onite family—but their priests or workers of magic were the Dees, and their principal god the Sun. To them, likewise, belonged the Lia-fail, or stone of destiny, which lies under the English coronation chair, and recalls Jupiter Lapis, and the Petra of Greek idolatry connected with the name of Abishur. In their number we find Nuadh of the silver hand, whose story Mr. Cox has identified with Germanic and Indian legends that will yet appear in intimate connection with the sons of Shammai;[148*] and their sacred cauldron is that of Dodona. But more remarkable than all this is the presence, in the royal and priestly genealogies of this people, of the following Onite names: Jarbhainel, who is Jerachmeel; Eana, who is Onam;[148**] Semias or Shammai; Tait or Daghda, who may be Jadag; Neid or Nuadh, who is Nadab, the brother of Abishur, and Gorias, who may be Abishur; Jondaoi or Jonathan; Ealathan son of Neid or Seled, of Nadab; Falias, whence the stone Lia-fail, which is the Greek Palladium, or Peleth. Beachoil, one of their chief princesses, is Abichail, and Gabhneoin may represent her son Achban, with whose name Gobhan, the Irish *smith*, has been already associated. Eathoir may be the childless Jether, son of Jadag, a reminiscence of whose name seems to survive in that of Juturna, called the wife of Janus. Milesius, who is represented as pertaining to another line, may be Molid. He takes the place of his brother Ahban as the father of Heremon, the husband of Tea (an Onite name), who is plainly Harum, for his son is Irial or Aharhel. Fial, called the mother of Heremon, is the Egyptian, Palestinian and Greek Phiala, and, as a form of Abihail, should be his grandmother, he being the son of Ahban.

In the British mythology, Seithwedd Saida is represented as having been the same as Dagon, the king of Dyved, or the land of Hud, and the father of Hywy, who is probably Achuzam, son-in-law of Onam. In Saida, Dyved and Hud we must, I think, see Dagon of Ashdod, or Jadag, the son of Onam. Whether this be the case or not, for one mythology may present the same individual under different

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Gorias of the Tuatha-de-Danans, whom I identify with Abishur, is connected by the latter writer with Stonehenge, which is called Choir Gaur or Temple of the Sun. To Soim or Semias, who is Shammai, he says wells and fountains were dedicated. Patruin was the name of the oracle drawn from wells. Dan is a poem, and Dana learning or poetry.

148* Cox's Aryan Mythology, i. 385.

148** Vallancey connects Jon, the sun, the god of the pagan Irish, with the Pehlvi Jhan.

aspects, it is evident that the Tuatha-de-Danans, who were masters of poetry as well as of enchantments, belong to the same stock as Tydain-tad-Awen, the Welsh originator of the poetic art, and that he reproduces the Indian Veda, whose relations are with Jadag. We have seen, however, that *gwyddoni* is the Welsh word answering to Jadag. I cannot, therefore, dismiss from the connection just specified, Gwyddon Ganhebon, another primitive bard, whose name enters with that of Tydain-tad-Awen into the bardic triad, nor Gwyddion, the son of Don, who appears in a similar triad of primitive astronomers. According to the learned Davies, Tydain-tad-Awen is Titan,[149] while Gwyddion, son of Don, is, like Tages, Sage, son of Genius.[150] The same writer informs us that Tydain-tad-Owen is solar, and relates to Apollo, and what is more important, that he is called Teyrn On, or sovereign of On, which Taliessin identifies with Heliopolis.[151] Now Davies knew nothing of what some are pleased to call my theory of mythology, which is no theory in reality, but the result, as astounding to myself as it can be to any one else, of legitimate inductive reasoning; yet had the result been before him, he could not have more completely justified it. With Tydain Ladon is associated, and with Awen the divinities Budd and Bun were worshipped at Stonehenge. At Seon of the strong door, Amathaon, another son of Don, is associated with Gwyddion. Seon is identified by Davies with Samothrace,[152] and Amathaon must, I think, seeing that he and Gwyddion are at times made the same, be Jonathan, the son of Jadag. In Tarw, the bull-demon, Abi-Shur or Taurus should be found. As Patarus, the British legends reproduce the son of Apollo in Bedwyr or Pedrog.[152*] Owen, the son of Urien, seems to point to Onam, the son of Uranus or Jerachmeel, and Adur as a progenitor of Tydain-tad-Owen may denote Atarah. The flat stone of Echemeint, called Carchar Hud, must have relations with the sacred stones of Irish and classical tradition, and, in its epithet Echemeint, may preserve the name of Acmon, Achban or Abn-ra.

Among the names which appear in the Arthurian romances, king Pescheur in the Lœgrian land, with Gawaine, Galahad the chaste,

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149 Davies' Celtic Researches, 168.

150 *Id.* 174.

151 Davies' British Druids, 526.

152 *Id.* 89, 168, 54. The Gwyllim or prophetic maids at Seon must be a reproduction of the Sibyls of Cumæ. Fleidur, son of Porthawr Godo, the door-keeper, may be Peleth.

152* A better identification might be Idris Gawr, whose keep, or Cader Idris, recalls Chuter Taurus.

and Pelles, have many links to bind them to the Onite Abishur, Achban, Seled and Peleth. It is a strange coincidence with the facts already established that appears in the chronicle of Geoffrey, where Evander is made a king of Syria.[153] In the same chronicle, Brutus is represented as the father of Kamber, Locrin and Albanact, while his wife is Ignoge, the daughter of Pandrasus, king of Greece.[154] To Kamber the region of the Severn fell as his kingdom, and the city of Brutus was Kær-Lud. Brutus is the same as Brathu, a form of Martu,[155] and denotes Mareshah; Lud, the name of his city, is Laadah, the father of Mareshah; Kamber, with the Severn, is Tiberinus, Tembrion, Khammurabi or Hebron, the son of Mareshah; and Ignoge, called his wife, is really the Heliopolitan Hanku, who married Cephren or Hebron, his son. Pandrasus challenges comparison with Pendaran Dyved of older forms of British tradition, who relates to the Awen line, and with the Greek Tyndareus and the Egyptian Tentyra. It probably denotes Jonathan-ra. As for Locrin and Albanact, though much out of place, they seem to designate Abishur in his Locrian connections, and Ahban in the Lebanon form of his name.

The Irish and Scottish traditions give a Scythian ancestry to the earliest inhabitants of the British islands. It is, therefore, interesting to find the Scythian Apollo called Œtosyrus, a name which Professor Rawlinson appropriately compares with the Indian Surya, and which denotes Abishur.[156] Paterus was also the name of the Celtic Apollo and his priests;[157] and from Penninus, a solar god who represents his son Ahban, the Pennine Alps and the Apennines received their name.[158] In Mediæval tradition, Helias or Ealadh, the son of queen Matabrune, with the legend of the golden collars which reappear in the golden rings of the Germanic dwarf Andvari, presents us with a form of Seled or Galahad, the son of Nadab or Nadab-ra, who is represented both by Matab-rune and Andva-ri.[159] Ealadh, or the

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153 Geoffrey's British History, x. 5.

154 *Id.* i. 2. Another female name or British story that finds an ancient equivalent is Blanchefleur, daughter of Merchiawn, who is Leucothoœ, daughter of Orchamus, Merchiawn or Mark being a British form of Jerachmeel.

155 Rawlinson's Herodotus, App. Book i. Essay x.

156 *Id.* App. Book iv. Essay ii.

157 Ausonius *apud* Banier, English ed. iii. 272.

158 Livy *apud id.* iii. 274. He is the same as the Germanic Geban. Grimm's Deutsche Mythologie, 567.

159 Cox's Aryan Mythology, i. 277; ii. 284.

swan, conducts us to Leda, the wife of Tyndareus, and other connections of the Onite line.

In Germanic legends the memory of Onam has been overlaid by Christian myths concerning the apostle John and John the Baptist. Grimm, in his Deutsche Mythologie, finds that Italy, as well as Germany and Scandinavia, maintained pagan rites under the name of John, who assumed the role of a water-god.[160] The same author, in his treatment of the Johannisfeuer, another pagan ceremonial, shows its connection with ancient solar worship, and appropriately directs attention to the Gebennaberg, on which Apollo was anciently worshipped, as one of the scenes of its observance.[161] In Gebenna we find the Gallic Penninus, or in other words Achban. The Sclavonic god, Kupalo, whom Grimm associates with Johannes, may be a form of Apollo, or designate Abihail, the wife and mother of solar divinities.[162] As for Baldag or Balder, the sun-god, who is found in the same company, he is Polydeukes or Peleth. This Johannes must be the head of the Scandinavian Vanir, who dwelt at Vanaheim. They were reputed to be especially wise and intelligent. Two of their goddesses, Skade, the wife of Njord, and Freya, bear names peculiarly Onite, Skade being called Ondurdis, and Freya, Vanadis, Syr, Gefn.[163] Vanadis, according to Grimm,[163*] is "nympha Vanorum," and she is the Undine whom Mr. Cox identifies with Daphne.[164] In Daphne, Ahban is not so perfectly preserved as in Gefn, the name of Freya or Vanadis, while her other epithet Syr gives us the Shur of Abi-Shur. It is interesting to note that Njord is represented as introducing vine culture, and that his children, Frey and Freya, were worshipped in Scandinavia, at Thvera and Upsala, which seem to be reminiscences of Abi-Shur and Abihail.[165] With Abihail also the island Abalus, or Basilea, in the same region, may connect. As for Ondurdis, the wife of Njord, she reproduces in her name the Egyptian Tentyra.[165*] For whom, in particular, Njord may stand I cannot tell.

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160 Grimm's Deutsche Mythologie, 555. Andvari connects, 559.

161 *Id.* 587. Here we must find the Egyptian connection of On and Ptah, and the Indian of Indra and Agni.

162 *Id.* 591.

163 Mallet's Northern Antiquities, Bohn, 426.

163* Deutsche Mythologie, 374.

164 Cox's Aryan Mythology, i. 400.

165 Grimm's Deutsche Mythologie, 197.

165* With Ondurdis the Indian Onderah, down to which the Asuras were driven by the Devs of Siva, has the closest verbal connection.

The most important legend regarding the Vanir is that which contains the story of their union with the Æsir, whom I have already identified with the Ashchurites. Njord, of Noatun, which recalls Jonathan, was given as a hostage to the Æsir, just as we have found Jonathan marrying a daughter of Achashtari, the son of Ashchur.[166] But the treaty of peace was concluded by the Æsir and Vanir unitedly forming a being called Kvasir, of great intelligence, whose blood, after he had been murdered by the dwarfs, was mixed by them with honey, and became the mead of the gods. Whoever drank the Kvasir acquired the gift of song.[167] This Kvasir was also called Son-ar and Hnitbiarga water.[168] The Kvasir has been identified with the Vedic Soma by many writers on comparative mythology, and with justice.[169] But should not some etymological connection be found in the two legends? Kvasir is the dismembered or murdered Abishur, Absyrtus, Icarius, etc., in the Geshur form of his name. Song, which has already been associated with the family of Onam, is the gift of Apollo, the sun-god. Sonar is simply the Sun with the Egyptian *ra* termination, for Sonne is San, Sham-as, or Shammai, the father of Abishur. Hnitbiarga may or may not relate to his brother Nadab, who is certainly the dwarf Andva-ri.

In still another form Abi-Shur appears before us in these Germanic traditions. He is Tyr, the strong and wise, whose hand was bitten off by the wolf Loki. In his story we find the Irish legend of Nuadh of the silver hand, and the Indian Savitar, whom I will yet prove to be Abishur. In the Irish legend his brother is made to do duty for him. Grimm has shown that Tyr is pre-eminently a sun-god.[170] Jadag is not unrecognized in the Germanic pantheon. He appears as Dagr or Tag, the son of Nott and brother of Donar; one of the husbands of Nott, although not Tag's father, bearing the name of Onar.[171] No solar theory can explain such an association of names, but a Bible Euhemerism can. Onar is simply An-ra or Onam; Tag or Dagr, Jadag-ra; and Donar, recalling the Greek Tyndareus and the Celtic Pendaran, is his son, Jonathan-ra.

The following tables present the Celtic and Germanic equivalents of the families of Onam:—

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166 Mallet's Northern Antiquities, 418.
167 *Id.* 461.
168 Grimm's Deutsche Mythologie, 857.
169 Cox's Aryan Mythology, i. 369.
170 Grimm's Deutsche Mythologie, 175, *seq.*
171 *Id.* 697.

I.

Jarbhainel = ——— = ———

Eana.

Semias, Soim. — Daghda, Tait, Tuatha.

Nuadh, Neid. — Gaur, Gorias = Beachoil. — ——— — Jondaoi, Danan.

Ealathan. ——— Gabhneoin. — Milesius. — Falias. ———

Heremon.

Irial.

II.

Erch, Urien, March = Adur (?) = ———

Awen, Owen, Don.

Seon. — Tydain, Gwyddion.

Matabrune. — Patarus, Tarw, Bedwyr, Idris Gawr, Fethuir, Pescheur, Oetosyrus, ——— Pandrasus, Amathaon, Pendaran,

Galahad, Ealadh. ——— Gawaine, Echemeint, Albanact, Penninus. ——— Pelles. ———

III.

[171*] Erminsul, Harimella = Heidr (?) = ———

Johannes, Onar, Vanir.

Sonne, Sonar. — Tag, Dagr.

Andvari, Hnitbiarga? — Tyr, Kvasir. — ——— — Donar, Ondurdis, Noatun.

Gladsheim. ——— Geban, Gefn. ——— Baldag, Balder. ———

VII.—PERSIAN CONNECTION.

In Persian mythology Strabo's Omanus and Anadatus,[172] and Homa, Tir and Aban challenge comparison with Onam and Jonathan, Shammai, Abishur and Ahban, the latter of whom, however, answers better to Açman.[172*] The only deity to whom, at present, I direct attention is Mithras, the sun and the mediator. Guigniaut points out the fact that Pliny gives this name to the first king of Helio-

[171*] The Germanic gods Erminsul and Harimella must, I imagine, preserve the memory of Jerahmeel, whose name may have survived in the Marcomanni. For the connection of the Persian Tir with the Scandinavian Tyr, *vide* Le Dabistan, Paris, i. 39.

[172] Strabo, xi. 8, 4.

[172*] Guigniaut, i. 784. Behram, a deity, may be a Brahma form of Ram, who should not be forgotten in an empire that contained Arachosia, named after his father. Tahmouras, a name I have supposed to relate to Athom-ra, may, in the form Symouras sometimes given, denote Shammai-ra.

polis.[173] Herodotus identifies the goddess Mitra with Venus Urania, who is the same as Athara or Atargatis, the name Urania being taken from her husband Jerachmeel.[174] But Mithras is a male divinity, and is represented, in the position of Kvasir or Janus, as uniting two races. He was worshipped by the Romans, and especially at Antium,[175] a place already connected with the Onam line. There is no doubt that he was a solar deity. The keys, which appear in several representations of this god, suggest some relation with Janus and other porters. The bull, which the young man in the Phrygian bonnet is engaged in killing, often bears the inscription "Mithras," so that Taurus may be the root of the word, and Mithras may represent Abishur, *m* simply taking the place of *b*, one of the commonest of literal changes in etymology. It would thus resemble the Babylonian Misharu. The Persians asserted that Mithras was born of a stone. His mysteries were called Patrica. But more important and definite is the representation of the wine of Icarius, the mead of Kvasir, and the Vedic Soma, by the blood of the bull, into the neck of which the dagger is thrust. On one of the marbles representing Mithras, at the spot where the blood flows forth, the words "Nama Sebesio" were found inscribed. These words have vexed the minds of many learned antiquarians, and, although no difficulty has been found in rendering them from the Greek into *august stream* or *sacred fluid*, no one has been able to explain why it should be so called. Abishur as Kvasir, uniting the Æsir and Vanir, is the explanation. The sacred fluid is the Soma that commemorates Shammai, as Mithras does Abishur. We have thus, representing the murdered Abishur or Amchura, Absyrtus, Icarius, Abderus, Kvasir, and the bull of Mithriac worship; and in the case of three of these, Icarius, and the two latter, the victim furnishes a beverage to his murderers. One source only can explain this legend with its peculiar accompaniments—the Egyptian monuments of Aboo-Seir or elsewhere, that refer to Amchura and his family.

VIII.—INDIAN CONNECTION.

The Vedic and other traditions of the Hindoos furnish a more satisfactory exhibition of the line of Onam than any yet afforded, and

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173 Religions de l'Antiquité, i. 367.

174 Herodotus, i. 131.

175 Della Torri, Monument. Vet. Antii. *Vide* Banier, Mythology and Fables of the Ancients i. 102 *seq.*

render important service in binding together names that may have seemed in certain cases to be arbitrarily connected. Onam, as I have already stated, is represented by the Sanskrit Indra, the son of Brachma or Brihaspati, the husband of Tara, in whom we recognize Jerachmeel and Atarah. Indra is a form like An-ra, the name of the solar god and king of Heliopolis, and Andreus, the early ruler of Grecian Orchomenos, the inserted *d* being a necessary expedient for the sake of euphony at first, although afterwards, as itself appearing in Jonathan, an original element of an important and closely allied word, with which the first was often necessarily confounded. Indra is the great deity of the Vedas,[176] which is most reasonable, since they take their name from his son Jadag, Tages, Tydain, Tuatha, the bard of the world's second infancy. More truly a solar god than himself is Soma, the great son of Indra, the deity of the juice and of the verses.[177] He is Shammai, who takes the role of his son Icarius, Kvasir, Mithras. He is sometimes called the son of Atri the son of Brahma, instead of the son of Indra, but Indu-Soma and similar terms seem to show that in Atri Indra merely assumes the name of his mother Atarah. Another generation is given us in Indian mythology, and Savitri or Surya, the son of Soma, who is pre-eminently the god of the Sun, brings us down to Abishur. The Suryas are his Syrian descendants and their subjects. But Savitar himself is the golden-handed divinity whom Grimm identifies beyond all chance of doubt with the Germanic Tyr,[178] and whom Mr. Cox connects with the Irish Nuadh of the silver hand. Professor Max Müller sees nothing here but the solar myths rising out of Indian and German consciousness independently into an accidental coincidence. With a modern German proverb, "Morgenstunde hat Gold im Munde," he would explain the myth of Savitar, and that of Tyr, with the trite saying that victory, which Tyr represents, can only be found on one side.[179] Professor Müller's ingenuity is to be admired, but his incredulity is worthy of a different fate.

I do not know whether Sammata, the first king of the race of the Sun, according to Buddhist traditions, with his successor, Upa-chara, represent Shammai and Abishur or not, but I think it is very

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[176] Müller, Science of Language, Series ii. Lecture x.

[177] *Vide* Muir's Sanscrit Texts. The union of the sacred beverage and of the gift of divine song in Soma agrees in all respects with the connections established.

[178] Deutsche Mythologie, *vide supra.*

[179] Science of Language, Series ii. Lecture viii.

probable.[180] Abishur, however, appears again under the not so easily recognized form of Vicram Maharajah, Vicramaditya or Vacradanta. As Vacradanta, he is king of Carusha, and prince of the Yavanas or Ionians.[181] As Vicramaditya, he follows Yoodistheer or Achashtari in the list of early Indian monarchs.[182] His father is Gandharba-Sena, but his grandfather is Indra.[183] Gandharba-Sena is certainly not like Soma, but his association with the Pitris and Apsaras favours the Abishur connection of his son, and in one place, at least, he and Soma are made husbands of the same wife.[184] Gandharba-Sena must, therefore, represent Soma in this legend. Kapila, who is Abihail, was the daughter of Daksha, and the mother of "Ambrosia, Brahmans, Kine, Gandharvas and Apsarasas;" but Indu Soma is made the husband of Daksha's daughter.[185] A better connection for Abihail, however, is found in the story of Vicram Maharajah, for there she is his wife Buccoulee, who is no doubt the same as Muchielal.[186] Following out the line of Abishur, Ahban appears in Chyavana, called the son of Manu, inasmuch as Ammon adopted him, when, after the death of Abishur, he married his widow Abihail. But Chyavana is also said to descend from the Pitris,[187] who, like the Paters, Pateras and Petras, have been already connected with Abishur or Dyauspitar. The son of Chyavana is Urva, a later Horus, Har-em-heb or Harum,

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180 Hardy's Manual of Buddhism, chap. vi.

181 Pococke's India in Greece, 297. It is remarkable to find in the list of peoples connected with the Yavanas of Vacradanta, as under the dominion of Jarashanda, King of Magadha, Chedi, under Sisupula (very like Seplul, King of Chetas, on Egyptian monuments) Surasenas, Mucutas and Pulindas (representing, perhaps, Syrians, Maachathites and Pelethites), while Magadha, Mathoura and Dwaraca (answering to Megiddo, Hamath-Dor, with its springs, and Tarichæa), are places belonging to the story in which they occur. It is also to be remembered that this story is one of Pandoo (Pandionidæ) warfare.

182 Yudistheer, as following Asoka, seems to be Achashtari. As the father-in-law of Jonathan he connects with the Pandoo line.

183 Cox's Aryan Mythology, i. 273, note.

184 Muir's Sanscrit Texts, i. 257, note.

185 *Id.* 133, note, 124. Kine, in its form Gav, may not be foreign to Giv, Givan, Achban, and the Taurus of Abishur, his father. Brahmans the Onites were by descent from Jerachmeel. Apsarasas are water nymphs, connecting with Daphne, Vanadis, Undine, &c. The Indian Abissares of Arrian may have been their progeny. With the cows, Soma and the stones (Petra of Abishur) are connected in the Rig-Veda. As for Indu-Soma, I would naturally be disposed to refer Indu to Onam, the father of Shammai, were it not for the meaning of the root *Indu, drop, sap*, which etymologically connects with the root *nataph, to drop*, with which the name Nadab is associated. From *nadav* the Sanscrit *indu* may easily be derived.

186 Cox's Aryan Mythology, ii. 352.

187 He is also called a son of Bhrigu, and this, I am convinced, is a form of Jerach, with the Coptic article. It connects with the lunar race of Pruyag. It was to avenge the Bhrigus, or ancient Phrygian stock, that Parasurama swept the Kshettriyas from the earth. With the hymn-singing Bhrigus the Germanic god of song Bragi must be united. I shall yet unite the Jerachmeelites with the Muses.

and his son is Richica or Acharchel. From this Richica came, after two descents, Parasurama,[188] who swept the Kshettriyas from the earth, and he is the Greek Perseus on the one hand and the Egyptian Rameses on the other, who, at Joppa, where Perseus met the Ceto, Cheta or Hittites, and elsewhere in their Palestinian home, warred against the descendants of Achashtari, the son of Ashchur.[189] When the way is made clear by the recovery of the earlier history of the world in Egypt and neighbouring lands, I hope to enter upon the story of the later period to which Parasurama belongs. The wife of Chyavana was Arushi, and in her I recognize Marica, the wife of Faunus. She must have belonged to the family of Mareshah, being probably his daughter and the sister of Hebron.[190] The Indian form of her name is similar to that which appears in the Arish and Ærodach, as compared with the Marsyas and Merodach. The story of Alpheus and Arethusa may present the same fact. It is worthy of note that Indra is called Upendra or Abn-ra and Maghavan, a word like Machbenah, a place in Palestine, which was named in all probability after Achban. Rama also is called Upendra and Mahendra, the latter name indicating his descent from Indra or Onam.[191]

Turning to the second son of Onam, I cannot doubt, from the etymology of the word, that the Vedas took their name from him. He may be Jatavedas or Agni, and thus the early Egyptian Ptah or Ptah-hotep, a copy of whose book, written in the time of Assa-Tankera, or his grandson Zaza, was obtained for the Imperial library of France.[192] I do not assert that Ptah-hotep's book of morals and

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188 *Vide* Muir's Sanscrit Texts, Vol. i. Ch. iv. Section xviii.

189 This legend is one of the most famous in Indian story, and was among the first that led me to associate the myths of the Hindoos with the early period to which my researches have been confined. The connection is hinted at in my paper, "The Pharoah of the Exodus identified in the myth of Adonis," an essay entirely wrong in most of its conclusions, yet presenting the germs of developments more consistent with fact. In the paper on "The Coptic Element in the Indo-European Languages," I have worked out the common origin of Parasu and Labrad, denoting the axe. The Irish Labradh or Maoin with the horse's ears, recalling the story of Midas, is really Meonothai or Seti-Menephthah, the father of Rameses, and the ears are those of the ass which appear on his monuments. Jupiter Labradeus has the same origin.

190 The Arish, named from Mareshah, and taking the form Larissa, is the Sanscrit Rasa connected with the Indian story of "the cows."

191 Rama, I think, must be the same person as Urva, who as Har-em-heb is made the same as Armais and Rameses in certain lists. As the son of Achban, Upendra is a name that he might easily bear.

192 Lenormant and Chevalier, i. 209. I have already suggested that Ptah is the Indian Agni, although I cannot account for the etymological difference. He may represent Jadag, to whose name his bears a resemblance that the Coptic article makes complete.

any of the Vedas are identical, but that this old book was the first ever known by that name. The Atharva-Veda should not be foreign to Athor or Atarah, the grandmother of Jadag, and the divinity of Tankera and Assa. So far the fish of An-ra, Oannes, Dagon and Janus, has not met us in Indian story. It appears, however, in the Matsya Purana, bearing the name Janardana.[193] The connection of Janardana with Vishnou, if the latter, as I have supposed, represent Achuzam, may be that which has already appeared, the marriage of Jonathan to a daughter of Achashtari. Of this, however, I am doubtful.

Jadag appears in the Buddhist legends. He is a Buddha; not the only one, for Etam or Athom was one and Achuzam was another, but a very important Buddha nevertheless.[194] He is the Buddha who is connected with Soma, who is called the son of Tara wife of Brihaspati, just as Indra, his father, is found to have been He was of the race Anu-sakya, and was named Devata Deva, recalling the Welsh Dyved and Hud. From Buddha came the Pandoos, their father also being called Divodasa.[195] It is impossible to avoid the conclusion that the Athenian Butes, chief of the priests, is the Buddha thus designated, and that Pandoo is the second Pandion who, in Greek mythical history, represents the Onite Jonathan. Draupadi, the mother of the Pandoos, connects in name with Zeripho or Semiramis of Ascalon, Zirpanit, and other names denoting a daughter of Achashtari, Xisuthrus, Asterius, the father of Chareph, Zervan, Sarpedon, etc., and we have found that Jonathan married such a wife.[196] The war between the Kooroos and Pandoos, in which the family of Nadab seems to have united with the former against their kinsmen, is a struggle between the Cherethites and Pelethites, which took place, doubtless, when the descendants of Jona-

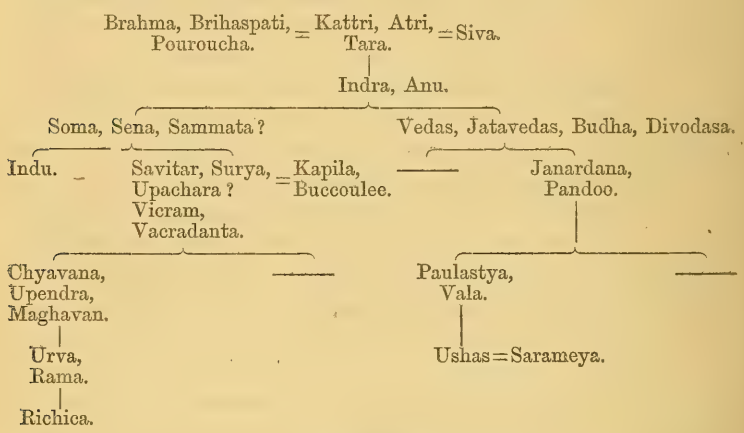
[193] Muir's Sanscrit Texts, Vol. i. Ch. ii, Section iii. Janardana must answer to the Chaldean Annedotus.

[194] The legends concerning the early Buddhas are so interwoven that it is difficult to make any use of the facts they contain for the elucidation of early historic notices. Etam, Achuzam and Jadag, the two latter being contemporaries, are, I think, the three principal Buddhas. In Etam we find the original Gautama. My paper on the Shepherd Kings contains some connections of Achuzam and Buddha, which are untenable. Even the Egyptian Thoth, as relating etymologically to *tot, the hand*, may refer more properly, so far as language is concerned, to Jadag (*jad, the hand*) than to Achuzam.

[195] Pandoo, like Pandion, Pandrasus, Pendaran, &c., is a Coptic form of Jonathan. Baneteren is the name of an Egyptian monarch answering in form to these. Pontus, recalling the Fontus of Janus, a region not deficient in the traces of the Onite family, may have received its name from the descendants of Jonathan.

[196] *Vide supra*, note 88.

than in the line of Peleth were driven out of Egypt, and were forced to maintain themselves in Beth Palet and other places in southern Palestine, against the encroachments and enmity of their Cherethite neighbours.[197] Paulastya is probably the same person as Peleth, and as the friend of Rama, seems to identify the latter with Harum. Thus India contributes its quota to clear up the obscure page of primitive universal history.



CONCLUSION.

It must have been observed that little has been said in the foregoing pages concerning Nadab, the elder son of Shammai, although his is the line of twenty descents. This is not because I have been altogether unable to trace his family, but because it has such widespread connections, especially with the line of Bethlehem, which I am not yet prepared to set forth with any adequate fulness, that I have hesitated to encumber the present essay with identifications

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[197] The war between the Kooroos and the Pandoos will be found to agree with that which took place between the Ætolians and the Curetes, the latter, like the Kooroos, representing the Cherethites. The Ætolian connection is with the house of Bethlehem, but as yet I do not see how Jonathan and his line are related to Bethlehem, except in the person of Atarah, who was a daughter of Salma, the father of Bethlehem, as Tyro was a daughter of Salmoneus. There is great confusion in the Greek annals in this part of history, which has prevented me from obtaining so clear a view of the relations of the family of Bethlehem as its importance demands. Tyro also, as the wife of Cretheus, in the Greek story, must represent some descendant of Atarah, for the mother of Onam could not be the wife of Zereth, the head of the Cherethites, seeing that he was a generation later than her son Onam. Tyro, however, belongs to the story of "the cows," with which Indra or Onam, Ushas or Sarama, (Hushim the wife of Shaharaim and other members of the line of Onam, are concerned.

involving tedious explanation. I may mention, however, that Nadab appears in the Greek Antiphates, reproducing the Egyptian Entefs; Appaim in Iphis; and the other members of his family in corresponding names belonging to the Hellenic myths of "Thebes" and of "the cows." These myths I hope soon to be able to identify in every particular with similar legends in Indian story, and with historical facts in Egypt and on the borders of Palestine.

It remains merely that I should sum up a few of the particulars appearing in connection with names that, if not identical in form, which is not to be expected, are at least near in resemblance, and which, recurring from time to time in the same order and with similar relations, afford presumptive evidence that they designate the same persons. These I shall simply specify, leaving the reader to verify them by referring to the divisions of the paper in which they occur.

I.—The persistent re-appearance of Ionian, Tentyrian and Locrian forms, *i.e.*, names agreeing with them.

II.—Descent from a lunar line of Jerach.

III.—Ashchurite and Hebronite connections by marriage.

IV.—Adoptive relations of the head of the line.

V.—The recurrence of the two female names Atarah and Abihail.

VI.—Titanic character of the younger branch.

VII.—Priestly character of the same.

VIII.—Solar character of the whole family.

IX.—The presence among them of supreme divinity.

X.—Identity of name in connection with cultus—Patera, etc.

XI.—Piscine symbols, attributes, &c.

XII.—Taurine names, symbols, &c.

XIII.—Sacred stones.

XIV.—Function of porter, sacred doors.

XV.—Smith and Anvil connections.

XVI.—Unhappy fate of the second son of Shammai.

XVII.—The connection of the same with wine and sacred liquor.

XVIII.—The gold and silver hand.

XIX.—The presence of a warrior class.

XX.—Its connection with a Cretan (Cherethite) line.

XXI.—Poetic gifts, bards, poems.

XXII.—High intelligence and magic arts, Sibylline oracles, etc.

XXIII.—Water divinities, nymphs, etc.
XXIV.—Relation to great mountain ranges.
XXV.—Union of two races.[198]

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[198] The following may be a partial guide to the facts alluded to :

I.—1. On, Anu, Ioninin, Ono, Oannes, Anu, Ione, Ion, Deione, Ænos, Janus, Eana, Jon, Owen, Don, Johannes, Onar, Anu-Sakya, Yavanas. 2. Tentyra, Tantura in Palestine, Tyndareus, Donar, Œnotrus, Onderah, Ondurdis, Antenor, Baneteren, Pendaran, Pandrasus, Pandareus of Miletus. 3. Locris, Leogoras, Leucosyrii, Luceres of Italy, Locrin, Lœgria, Loguhr of India.

II.—Urukh, Orchamus, Jericho, Uranus, Erechtheus, Arcas, Argus, Orchomenos, Jarbhainel, Merchiawn, Brachma, Brihaspati.

III.—1. Sesortasen I. and daughter of Onnos, Aos and Danke, Ixion and Dia of Deion, Picus and daughter of Janus. 2. Janias and Assis, among Ashchurite Shepherds, Xisuthrus and Titan, Tyndareus and Œneus with Leda and Althæa of Thestius, Pallas of Titan and Asteria, Castor and Pollux, Njord at Noatun, hostage to Aesir, Yoodistheer and Pandoo. 3. Aten-ra and Taia of Ainnin, Danaus and Phœbe of Tyndareus, Latinus and Pallatia. 4. Cephren and Hanku, Khammurabi and family of Anu, Hyperion and Theia, Cebren and Œnone, Cephalus of Deion, Tiberinus and Daphne, Kamber and Ignoge.

IV.—The story of Chronicles, of Phœnician Anobret, of Ion, of Janus.

V.—Athor, Athara, Atargatis, Terra, Tara, Gayatri, Mitra, Phiala, Amalthæa, Capella, Beachoil, Buccoulee, Kapila.

VI.—In Babylonian, Greek and Welsh connections.

VII.—Ptah-hotep, Butadæ, Buddhists, Tuathas, etc.

VIII.—Universal.

IX.—Baal Samen, Jupiter, Indra.

X.—Greek, Roman, Persian, Gallic and Irish,

XI.—On or An-ra, Oannes, Dagon, Janus, Janardana.

XII.—Egyptian, Chaldean, Persian, Indian, Greek, Roman, Celtic.

XIII.—Babylonian, Greek, Roman, Persian, Indian, Celtic.

XIV.—Egyptian, Roman, Celtic.

XV.—Persian, Celtic and Greek.

XVI.—Icarus, Icarius, Abderus, Absyrtus, Kvasir.

XVII.—Icarius, Mithras, Kvasir, Soma.

XVIII.—Nuadh, Tyr, Savitar.

XIX.—Pelethites, Velites, Peltastes, Hoplites.

XX.—Cherethites, Cretans, Kooroos.

XXI.—Tuathas, Tydain, Vedas.

XXII.—Ideona, Jannes, Oannes, Tages, Tuatha-de-Danans, Sibyl of Cumæ, Gwyllion of Seon, Patruins of Soim, Phiala.

XXIII.—Apsaras, Daphne, Vanadis, Undine.

XXIV.—Lebanon, Apennines, Pennine Alps, Cevennes.

XXV.—Janus, Mithras, Kvasir.

Turning to my paper on the Shepherd Kings, it will be seen that a totally different series of particulars connected with the identifications made, is presented. Thus, the Ashchurites are men of the horse and of the sea; to them belongs the tradition of the deluge; mythological serpents and dragons refer to one of the family; letters to another; lightning to a third. The whole family is Typhonian, funereal and sepulchral. Religious mysteries everywhere characterize it. Opposition to a solar Horite line continually marks its history. In all of thes particulars the Ashchurite line differs from that under consideration, while, as we have seen, there are links to bind the two races together. A critical analysis of the statements made concerning the members of these families already identified, as these are found on the monuments, in traditions and so-called mythology, should, with geographical, ethnological and philological aids, do much to restore the first page of early history.

The monuments of Egypt, Assyria and Babylonia must inform us of the early history of the great Onite, or, as we may term it, Ionian family. The other records from which I have taken my materials can only serve to confirm the conclusions drawn from the study of the monuments, and to connect the race which these commemorate with part of the populations among whom such traditional records occur. Yet by their means we may be enabled not only to build up a true ethnology, and a comparative philology worthy of the name, but also to restore universal history from before the time of Abraham to the commencement of the accepted historical periods of civilized nations, when their later annals have been subjected to well-founded criticism. So far it has simply appeared in this paper that a man, whom the Hebrew record calls Onam, left a Chaldean home to exercise sovereignty near the banks of the Nile; that he founded a dynasty—the members of which ruled in On, Aboo-Seir, Tentyra, Thebes, Hermonthis, and other parts of Egypt; that some of his descendants remained in that land until after the exodus of the children of Israel; that others were early expelled, and established themselves in Palestine, Syria, Assyria and Babylonia; and that thence they spread in different bands, carrying with them the same legends into Persia and India in the east, and in the west into Asia Minor, Thrace, Greece, Italy, Gaul and the British Islands. Side by side with them in these various countries have appeared Jerachmeelites, Horites, or Ashchurites, and within the Germanic area, which is peculiarly Ashchurite, their legends have occurred attesting an ancient and important connection of the two families. The student of the early history of Babylonia and Assyria may receive some assistance from the facts stated in this essay, but its chief importance is for the Egyptologist. It has added ten kings, princes or divinities, to the six whom my researches among the Horites brought to light, and the twenty-eight specified or alluded to in my paper on "The Shepherd Kings." Forty-four Egyptian names within at most six families, independently of many doubtful connections, I have thus professed to arrange in chronological and genealogical order.[199] They do not extend, however, over more than eight genera

[199] The forty-four names occur as follows:

I.—Divinities, monarchs and princes of the Horites, Auritæ or Hor-shesu, including the Jerachmeelite family of Onam.

tions.[200] Within the same period I hope yet to be able to place, along with some omitted members of the families whose history has been already considered, other royal and princely personages belonging

1. *Shobal*, Sebek, or Seb-ta. 4. Athor, *Atarah*.

2. *Alvan* or *Reaiah*, Il or Ra.
3. *Manahath*, Month-ra or Menes.
5. *Onan*, Anu-ra or Onnos.

6. *Jachath*, Ati or Achthoes.
Achashtari, =7. Ritho. Nesteres, Sesostris, Sesortasen III.
8. *Shammai*, Sem, Semempses or Semphucrates.
Achazam, =9. daughter. Aches or Sesortasen I.
10. *Jadag*, Ptah.

11. *Achumai*, Ahom-ra, Khem or Kames.
Hareph (27), Harphre or Cerpheres.
12. *Nadab*, Antaeus or Entef.
13. *Abishur*, Busiris, Shoure or Amchura.
14. *Jonathan*, Janias or Tankera.

15. *Ahban*, Anbn-ra or Damphenophis.
16. *Zaza*, Assa or Assis.

17. *Harum*, Armais or Har-em-Heb.

18. *Acharchel*, Archles, Acherres or Rameses I.?

II.—The same of the Mestræi, Hyksos, Shepherds or Ashchurites.

19. *Ashchur*, Sa-hor or Usescheres.

20. *Achuzam*, Thoth, Aches, Sesortasen I.
21. *Chepher*, Kheper, Sephres, or Chebros, or Sesortasen II.
22. *Temeni*, or Timan-hor.
23. *Achashtari*, Nesteres, Sesostris, or Sesortasen III.
24. *Zereth*, or Curudes.

25. *Jehaleleel*, Arceris or Salatis.
26. *Kenaz*, Pachnas, Bakkan, or Cheneres.
Jonathan (14), Janias or Tankera.
27. *Hareph*, Harphre or Kerpheres.

28. *Ziph*, Typhon or Suphis.
29. *Ziphah* or Nephthys.
30. *Othniel*, = daughter. Staan, Atin-re or Thothmes I.

31. *Hathath*, Athothis, = *Acharchel* (18), Archles, Acherres, or Rameses I.? Teta or Hatasu.

32. *Meonothai*, Seti Menephthah.

33. *Ophrah* or Miphres Thothmosis.

III.—The same of the subordinate lines of Etam, Ammon and Mareshah.

34. *Etam*, Athom-ra.
36. *Ammon*, Amun or Amenemes I.
41. *Mareshah*, Mœris or Maire.

35. *Jezreel*, Osiris, Thyrillus.
37. *Coz*, Khensu, =Nephthys (29). *Ziphah* or Choos or Ke-ke-oou
42. *Chebron* or Cephren =43. *Hanku*.

38. *Anub*, Anubis or Kneph Suphis.
39. *Zobebah*, Biophis or Bubastis?
44. Rekamai or *Rekem*.

40. Jabez or Apophis.

[200] This, I think probable only. It is true according to my present system. There is, at least, one weak point, however, in that system. It is found in the temporal relations of the line of Ammon with the Shepherds of the lines of Achuzam and Hepher, and appears prominently in the contemporaneousness of Jabez or Apophis and Meonothai or Menephthah. It is to be

to the lines of Jerachmeel and Salma, thus completing the scheme of early Egyptian, and with it, to a great extent, of early universal history. Meanwhile I await the verdict of those scholars, whose studies and researches qualify them to weigh and adjudicate upon the evidence which it has been my task, briefly, yet, I trust, with fairness, and a certain amount of perspicuity, to lay before them concerning the primitive history of the Ionians.

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remembered, however, that generations vary greatly in length, so that contemporaneousness cannot always be predicted in accordance with the same number of descents from a common ancestor. Also, it is not stated in Chronicles that Meonothai was the son of Hathath. He may have been her grandson through a daughter, and thus be a generation later. Here, however, as elsewhere, I have simply given the results of my inductive process, which embraces the genealogies of Chronicles, the Egyptian records, monumental and traditionary, with the mythological and other data furnished by the scriptures of the civilized Asiatic and European peoples, and have not sought to make them square with any system whatsoever. In view of the great obscurity of early history I have merely endeavoured, "parum claris lucem dare," and shall be well satisfied, though much be swept away by judicious criticism on the part of those who are qualified to criticise, if the residuum of truth help forward the knowledge of the world's ancient record.

AN OUTLINE OF THE GEOLOGY OF ONTARIO,

BASED ON A SUB-DIVISION OF THE PROVINCE INTO SIX NATURAL DISTRICTS.

BY E. J. CHAPMAN, PH. D.,
Professor of Mineralogy and Geology in University College, Toronto.

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The Province of Ontario, regarded in its natural features, admits of a sub-division into six areas, more or less distinct in their physical and geological characters. These areas or districts succeed each other from east to west in the following order:—(1) The Lower Ottawa district; (2) The Gananoque and Back Townships district; (3) The Lake Ontario district; (4) The Erie and Huron district; (5) The Manitoulin district; and (6) The district of the Upper Lakes.

The Lower Ottawa district is an essentially agricultural area, underlaid by Palæozoic rocks in comparatively undisturbed stratification. It occupies the country between the right bank of the Ottawa and the left bank of the St. Lawrence, extending to the Province boundary near the junction of these rivers. On the west, it is bounded by a line extending roughly from Brockville to the vicinity of Perth, and from the latter point to the Ottawa a little north of the mouth of the Madawaska. It lies at an average height of from 250 to 300 feet above the sea, and presents a generally level surface. Here and there, however, some bold escarpments occur, especially around Ottawa City. These are mostly connected with faults. In other places, somewhat extensive swamps prevail; but viewed generally, the district is well timbered and of good fertility. A broad synclinal, with an intermediate fold, forms the floor of the country between the two rivers. The strata of the district belong to the Lower Silurian Series, but they are overlaid in many places by Drift deposits and more recent superficial accumulations. The Lower Silurian beds comprise representatives of the Potsdam, Calciferous, Chazy, Trenton, Utica, and Hudson River formations. The Potsdam strata are mostly sandstones and quartzose conglomerates, with a few interstratified beds of dolomitic limestone. They form a more or less

continuous belt around the southern and western limits of the district. The Calciferous strata are mostly dolomitic and arenaceous limestones, and they extend over a considerable area along the inner edge of the Potsdam belt. The Chazy strata (mostly limestone) form a broad zone east of the calciferous area; and the Trenton limestones, with succeeding bituminous shales of the Utica Formation, and Hudson River arenaceous beds, occupy smaller areas towards the central and eastern portions of the district. These Silurian beds are overlaid very generally by clays and sands belonging to the Drift and Post-Glacial periods. The fossil shells in the latter are all of existing species, and of marine or estuary type. The principal economic minerals of the district comprise the dolomitic limestone of Nepean (Chazy formation), from which the celebrated "Hull cement" is manufactured; beds of the same formation from near L'Orignal, which admit of a good polish; and the great peat deposits of Cumberland, Plantagenet, Gloucester, and adjacent townships.

The Gananoque and Back Townships district, lying immediately west of that just described, is of a very different character. In place of undisturbed limestones and other palæozoic strata, we have here great beds of hard crystalline rock, mostly tilted at high angles, and otherwise contorted and disturbed. The district forms a narrow belt of rugged country lying along the St. Lawrence, between Brockville and the vicinity of Kingston, but rapidly widening and covering a large area in its northern and north-western extension. Its southern boundary runs from the east of Kingston through the back townships of Frontenac, Addington, Hastings, Peterborough, Victoria, and Simcoe, and strikes Georgian Bay near the mouth of the Severn. From this point it forms the shore of the Bay to beyond French River. Its north-western boundary is to some extent a conventional line running from the latter spot to Lake Temiscamang. Strictly, perhaps, the district should not be separated from that of the Upper Lakes, but for descriptive purposes it is convenient to keep the two distinct. They present, moreover, certain points of difference. Both consist essentially of crystalline mineral regions; but in the lower district the gnessoid rocks are interstratified with many bands of crystalline limestone, containing various silicates and other minerals; whilst these limestone bands are apparently wanting in the more western country. In both regions iron ores abound; but those of the lower district are frequently titaniferous, whilst those of the upper

district are as a rule practically free from titanium. Again, the overlying Huronian and copper-holding rocks of Lake Huron and Lake Superior, with their associated beds and dykes of trappean rock, have have not been recognized in the Gananoque district. The mean elevation of the latter above the sea is probably about 800 feet. Its surface throughout is more or less of a broken, hilly character, with vast masses of bare Laurentian rock standing in many places high above the ground ; and numerous lakes occur along its southern border, and within its area generally. Although not favorably adapted, as a rule, for agricultural occupation, the district contains valuable economic minerals. The principal of these comprise: the iron ores of McNabb, Bedford, Crosby, Sherbrook, Madoc, Marmora, Belmont, Minden, Snowdon, etc.; the auriferous mispickel of Marmora and adjacent townships; the galena of Frontenac, Galway, etc.; the apatites of Burgess and Elmsley; the mica of Burgess; and the marbles of the townships of Barrie, Elzevir, and surrounding country.

In the Lake Ontario District we come again upon an agricultural area, underlaid by limestones, shales, etc., in comparatively undisturbed stratification. This district ranges along the entire north and west sides of Lake Ontario. Its eastern and northern limits are bounded by the crystalline Gananoque district described above. Its western boundary is the high escarpment which runs from the Niagara River by Queenston, Hamilton, Dundas, Georgetown, etc., to Cabot's Head on Georgian Bay. From that point the district forms the shore of the bay to a little beyond the mouth of the River Severn. As regards surface features, it presents but few marked inequalities of level. The ground rises gradually from Lake Ontario (232 feet above the sea) in a series of ridges or terraces running in a general east and west direction. These ridges are composed of Drift materials, mostly sand and gravels filled with boulders of various kinds, brought down from northern sources during the Glacial Epoch, probably by floating icebergs. The highest ridge in Albion and King townships has an elevation of from 700 to 750 feet above Lake Ontario, but becomes gradually lower in its eastern extension. Lake Simcoe to the north is 704 feet above the sea, and Balsam Lake (the northern part of which runs into the crystalline area already described) is still higher, its elevation being 820 feet above the sea. Belmont Lake and Rice Lake are each nearly 600 feet, and Scugog Lake (in the midst of the drift ridges) nearly 800 feet above the sea level.

The strata of the district consist entirely of Lower Silurian formations, except in the extreme west, where the Medina formation of the Middle Silurian series occurs. In ascending order, and succeeding each other from east to west, these strata comprise the Potsdam (slightly developed near Kingston); Trenton (including the Black River beds which cannot properly be separated from the higher Trenton strata); Utica; Hudson River; and Medina formations. Of these, the Trenton is composed of limestones and limestone shales. Some of its beds yield excellent building stone; and towards its lower portion a band of lithographic stone runs more or less continuously from near Kingston, by Marmora, etc., to Georgian Bay. The Trenton formation ranges along the lake shore from Kingston to Cobourg, and outcrops on several of the interior lakes and streams, as well as on Georgian Bay. The succeeding Utica formation consists of dark bituminous shales, as seen at Whitby and also west of Collingwood harbour. West of the Utica shales the thin-bedded sandstones, etc., of the Hudson River series crop out, and range along Lake Ontario from about the River Rouge to the Credit, appearing also in force on the south-west shore of Georgian Bay, as at Cape Rich, Cape Crocker, etc. West of the River Credit to the western boundary of the district in the great Niagara escarpment, the red marls and sandstones of the Medina formation form the outcropping strata. The greater portion of the Lake Ontario district is overlaid however, by clays, sands, and gravels of the Glacial and Post-Glacial periods, by which the underlying rocks are much concealed. Beneath these deposits, the limestone strata, especially, are found very generally to be striated and polished by glacial action, the striæ running most commonly in a south-west direction. Many fresh-water shells, identical in species with those now living in our lakes and streams, occur at various levels in the post-Glacial accumulations; and their presence in these deposits apparently indicates the former union of our lake waters into one vast freshwater sea, held up on the east by a greater elevation of the gneissoid belt of rock which crosses the St. Lawrence between Brockville and Kingston, and expands into the wild district of the Adirondack Mountains in the State of New York; or perhaps by an enormous glacier descending from this elevated region and extending northwards into Canada. Bones and teeth of the beaver, wapiti, and other existing mammals are also occasionally found in these higher deposits, together with two extinct types: the mammoth,

an extinct species of elephant; and the mastodon, a related but entirely extinct proboscidean genus.

The Erie and Huron district is another agricultural region of great fertility. It lies immediately west of the Lake Ontario region, and is separated from the latter by the line of the great Niagara escarpment, which runs from the Niagara River, by Queenstown, Thorold, Hamilton, Dundas, etc., to Cabot's Head, on Georgian Bay. It thus forms, for the greater part, an elevated table-land, bounded on the south by Lake Erie, and on the west by Lake Huron. Along its eastern and north-eastern edge, as well as in its central portion, the district lies at an average elevation of from 1,200 to 1,300 feet above the sea; but the ground slopes gradually to Lake Erie, 565 feet, and to Lake Huron, 578 feet above the sea-level. Its surface, except where cut by river-valleys, is generally even; and it presents a marked contrast to the lower region of Lake Ontario, by the almost total absence of inland bodies of water. It is traversed, however, by many important rivers—as the Grand River, flowing into Lake Erie; the Thames, flowing into Lake St. Clair; and the Maitland and Saugeen, flowing into Lake Huron. The eastern and north-eastern escarpment is also cut through by numerous smaller streams, which thus flow through deep ravines, many of which are of a very wild and picturesque character. The strata of the district consist of the Middle and Upper Silurian, and various Devonian formations. These succeed each other generally from north-east to south-west, and comprise in ascending order the Clinton, Niagara, Guelph, Onondaga or Gypsiferous, Lower Helderberg or Eurypterus, Oriskany, Corniferous, Hamilton or Lambton, and Chemung-Portage formations. These strata, although practically undisturbed, are affected by several moderate anticlinals running across the more central part of the district in a general east and west or south-west direction; and it is thought that the petroleum of this part of the region has been brought towards the surface by fissures resulting from these anticlinals. A transverse or nearly north and south fold, forming a trough or synclinal filled with higher Devonian strata (of the Hamilton or Lambton formation), also occurs in the south-western portion of the district between Lake Erie and the south point of Lake Huron. Finally, it may be observed, that the strata of the district generally are much overlaid by boulder-clays, sands and gravels of the Glacial and Post-Glacial periods. These agree generally with deposits of the same age occur-

ring, as already described, in the Lake Ontario region. The more important economic minerals of the district comprise, in addition to petroleum, the gypsum of the Grand River valley, etc.; the hydraulic limestone of Thorold; the brine of the Goderich region; the ochres of Middlesex and Norfolk; and the peat beds of Humberstone and Wainfleet on Lake Erie.

The Manitoulin district partakes of the characters of both the Ontario and Erie districts, as the Silurian strata of these latter range entirely through it. The district comprises the Great Manitoulin Island, eighty miles in length, with the La Cloche and other smaller islands lying between it and the mainland, and Cockburn Island, Campement d'Ours, St. Joseph's Island, etc., farther west. Drummond Island belongs also geologically to the district, but lies beyond the Dominion boundary. The strata of the district succeed each other in passing from north to south, the general dip being in the latter direction. They comprise a slight development of Huronian quartzites, with representatives of the Chazy (?), Trenton (including the Black River beds), Utica, Hudson River, Medina and Clinton, Niagara and Guelph formations. The Niagara escarpment runs from east to west through the Great Manitoulin Island in the form of a cliff face, fronting northwards, and the southern half of the island is composed essentially of limestone beds of the Niagara formation, bare outcrops of these rocks forming in many places the surface of the ground. Northwards, the arenaceous shales of the Hudson River series, with outlying band of Utica slate, and fringe of Trenton limestone, are the more characteristic formations. The north part of the island contains numerous lakes, and its north shore is indented by comparatively deep bays. These and the lakes appear to lie in synclinal folds, formed by a series of anticlinals, with north and south axes, which traverse the island throughout its length. The rocks of the district generally are marked with glacial striæ, and northern boulders are abundant in many localities. Petroleum springs occur on the Great Manitoulin, in the Utica formation, but wells sunk upon these have yielded no permanent supply of any importance.

The district of the Upper Lakes may be defined in general terms as extending over the entire north-western portion of Ontario, from Lake Tamiscamang and French River, on Lake Huron, to the boundary of the Province beyond Lake Superior. It forms a rugged, mountainous region, broken up by numerous bodies of water, and

underlaid essentially by hard crystalline rocks, belonging, for the greater part to the Laurentian series. The surface of Lake Huron is 578 feet, and that of Lake Superior 600 feet above the sea. From these levels the ground rises more or less abruptly to an average height of from 1,000 to 1,500 feet, with occasional points of still greater elevation. The recognized rock formations comprise representatives of the Laurentian, Huronian, Upper Copper-bearing, and Chazy (?) series, with many eruptive granitic and trappean rocks, and overlying Glacial and post-Glacial deposits.

The Laurentian rocks are composed of vast beds of micaceous and hornblendic gneiss, quartzites and other crystalline strata; but the bands of crystalline limestone associated with these rocks in eastern districts are here apparently wanting. These Laurentian strata are mostly inclined at high angles, and are variously folded and contorted by undulations. In places also they are broken through by vast masses of granite. They form a great part of the north and east coasts of Lake Superior; but along the north shore of Lake Huron they are mostly overlaid by Huronian strata, although forming the coast-line from the River Thessalon to a short distance east of the Mississagui. In the back country of both lakes, however, they extend over almost the entire surface of the region.

The Huronian strata are composed mostly of green and other slates, quartzites, quartz and jasper conglomerates, and other rocks, for the greater part of semi-crystalline aspect. They are interstratified also with trappean bands, and are penetrated by numerous dykes of trap and greenstone. In many places likewise they are traversed by quartz veins carrying ores of copper and other metals. They form a broad belt ranging from Lake Temiscamang to Lake Huron, west of French River, and along the lake shore to the River Mississagui. They reappear again on the coast west of Thessalon River, and occupy a large area between Lake George and the country around Echo Lake. They occur also on the east and north-west coast of Lake Superior, and in a band at the back of Thunder Bay, as well as in several other bands farther west and north, where they appear, according to Prof. Robert Bell, to occupy synclinals, in folds of Laurentian strata. Their more important economic minerals comprise; the copper ores of Lake Huron (Bruce Mines. etc.); the iron ores of Echo Lake, Michipicoten River, Pic River, etc.; the antimony ore of Echo Lake country; the silver bearing veins (3 A mine, etc.) of the

Huronian belt of Thunder Bay; and the gold-bearing veins of the Lake Shebandowan country.

The strata known conventionally as the Upper Copper-bearing rocks of Lake Superior, overlie the Huronian formation in some places, and rest directly on Laurentian rocks in others. They belong to three series: a lower series, composed mostly of dark slates, beds of chert, and greenish-grey sandstones, with interstratified beds of trap or hardened volcanic mud; a middle or second series, consisting chiefly of red and white marls and calcareous sandstones, also with interstratified belts of trap or volcanic mud; and a third division, consisting of an enormous overflow of trap, resting uncomformably on both the lower series. The first or lowermost division occurs along the coast between Pigeon River and the eastern extremity of Thunder Bay, and is capped by the third division or so-called crowning overflow of trap in many places, as, more especially, at the bold promontory of Thunder Cape, at McKay's Mountain, on Pie Island, and elsewhere. The red and white marl and sandstone series occurs principally between Thunder Cape and Nepigon Bay, and is also capped by masses of trap belonging to the crowning overflow. It appears also to occur at other points on the north-east and eastern shores of the lake. Both the first and second divisions are penetrated by quartz veins carrying various metallic matters, as native silver, silver glance, galena, zinc blende, nickel ore, copper ore, etc. The Silver Islet, Thunder Bay, Trowbridge, Duncan or Shuniah, Jarvis Island, Spar Island, and other mineral locations lie on the lowermost series; whilst the North Shore, Cariboo, Enterprise or Black Bay, Silver Lake, and other locations, belong to the second division. The age of these rocks is still a subject of controversy. By some observers they are regarded as Triassic, a view based chiefly on mineral aspect. Sir William Logan, on the other hand, stoutly maintains their Lower Silurian age, regarding them most probably as equivalents of the Potsdam and Calciferous formations of eastern localities, or, at least, as occupying a lower geological horizon than that of the Chazy formation; and the weight of evidence at present is certainly in favour of this view. Certain sandstone beds, commonly known as the Ste. Marie sandstones, are seen at points east of St. Mary's River, (as on the Island of Campement d'Ours, etc.,) to underlie fossiliferous limestones of the Trenton (or Black River) formation; and these same sandstones at points on the eastern side of Lake Superior overlie

strata with bedded traps, etc., apparently belonging to the second Copper-bearing series. The Sault Ste. Marie sandstones must, at least, be as old as the Chazy series of strata, if not older; and consequently, if the rocks on the east side of Lake Superior belong really to the Copper-bearing group, they cannot be far removed from the base of the Silurian series. Other arguments in support of this view might also be brought forward.

Finally, it may be observed that Glacial striæ occur more or less everywhere on the harder rocks throughout this region; and boulder clays, with Post-Glacial sands and other deposits, forming in places high ridges or terraces, are of very general distribution. Many of the rivers of Lake Superior and Lake Huron flow through alluvial tracts, in some cases, as on the lower course of the Kaministiquia, of considerable width and good fertility.

RELATION OF THE LAW OF GRAVITATION

TO THE

PRINCIPLE OF THE CONSERVATION OF ENERGY;

WITH A PROOF OF THE NECESSARY TRANSFORMATION OF THE FORCE OF GRAVITY, AT A CERTAIN LIMIT, FROM A FORCE OF ATTRACTION TO ONE OF REPULSION.

BY THE REV. GEORGE PAXTON YOUNG, M.A.,
Professor of Metaphysics and Ethics, University College, Toronto.

I purpose in this paper to show that, if the principle of the Conservation of Energy be accepted, the force of gravitation, which, at ordinary sensible distances, is one of attraction, must necessarily undergo transformation, at a certain limit, into a force of repulsion, and to indicate a higher law, under which the law of the attraction of bodies, according to the inverse square of the distance, falls.

1.—Preliminary Statement of the General Conception on which the Solution of the Problem Proceeds.

The principle of the Conservation of Energy implies that, in a given finite material system, there is a definite amount of energy; exactly so much, and no more; an amount which, if not dissipated on the one hand, or augmented *ab extra* on the other, remains unaffected by the actions of the bodies in the system on one another. Hence, no law of mutual action between the bodies of the system, which would give rise to an indefinitely great velocity, can operate without limitation; for, energy means capacity for doing work; and the work done upon a given mass of matter is estimated by half the product of the mass by the square of the velocity; therefore, an indefinitely great velocity could not be produced unless at the expenditure of an indefinitely great amount of energy.

Let us apply this to the case of the law of gravitation, according to which, two particles, whose masses are m and n, attract one another with a force inversely proportional to the square of the distance. Two such particles, falling towards one another from rest, would, if the law of gravitation continued to hold good without limitation, acquire indefinitely great velocities as they approached indefinitely near to one another; in other words, an indefinitely great

amount of work would be done, involving the expenditure of an indefinitely great amount of energy: which, on the principle of the Conservation of Energy, is impossible. Consequently, either that principle must be abandoned, or the law of gravitation must, when a certain limit is reached, undergo transformation.

2.—Positive and Negative Energy.

I shall limit myself to the consideration of the simple system described in the last paragraph—namely, a system of two particles, P and Q, whose masses are m and n, and which fall towards one another under the influence of their mutual attraction from positions of rest A and B. To these positions we may suppose them first to have ascended (their centre of gravity remaining stationary) from positions C and D, where they had the velocities v and u. I speak of the particles as in their ascending course when they are moving apart from one another, and as in their descending course when they are falling towards one another. After reaching A and B, where their velocities have been reduced to zero, P and Q fall back to C and D.

The velocities v and u, which P and Q have in the positions C and D, are reduced to zero when the particles have ascended to A and B. The work done, or energy expended, in the reduction of these velocities from v and u to zero is represented by $\frac{1}{2}(mv^2 + nu^2)$. The energy so expended may be called negative, because the expenditure of it tends to lessen the distance between the particles. In ascending, then, from C and D to A and B, the *negative energy* of the system, available for lessening the distance between the particles, has been diminished by $\frac{1}{2}(mv^2 + nu^2)$; that is to say, it has been converted into energy in some other form, which we may call *positive energy*.

The particles, having ascended to A and B, immediately fall back to C and D. How has the negative energy of the system been affected by this? To produce the fall, the same expenditure of negative energy was required as took place in the ascent from C and D to A and B. In both cases the negative energy was operating in the way of lessening the distance between the moving particles. Hence, when P and Q have arrived at C and D in their descent, the negative energy of the system has been still further diminished, and the positive energy increased, by $\frac{1}{2}(mv^2 + nu^2)$.

To record these results in a convenient manner, the following symbols may be employed. The distance between A and B being r, and that between C and D being x, let the negative energy of the system, when the particles are at C and D in their descending course, be $N(r, x)$; and the positive, $P(r, x)$. Then, according to the explanations given,

$$N(r, x) = N(r, r) - \tfrac{1}{2}(mv^2 + nu^2),$$
$$P(r, x) = P(r, r) + \tfrac{1}{2}(mv^2 + nu^2).$$

And, by addition,

$$N(r, x) + P(r, x) = N(r, r) + P(r, r) = q;$$

where $N(r, r) + P(r, r)$, which we represent by q, expresses the total amount of energy conserved; while $N(r, x)$ and $P(r, x)$ are the parts, whose variations at every instant neutralize one another.

3.—How the Dependence of the Accelerations of P and Q on the Relative Quantities of the Two Energies is to be Conceived.

We might, if we pleased, conceive each of the two kinds of energy as operating effectively at every instant in producing its appropriate result. In this case equal quantities of the two energies would neutralize one another; and the resultant effective energy would be the difference between $N(r, x)$ and $P(r, x)$.

According to another mode of conceiving the subject, one of the two energies alone would be effective at a particular instant, the other lying in the meantime latent. Thus, in the career of P and Q which we have traced, the negative energy alone would be conceived as effective, the positive being in a state of latency, from which, however, it is destined in due season to come forth into effectiveness.

I adopt the latter of these two modes of conception. It will be understood, then, that *effective* and *latent* energy are distinguished from one another, the negative being effective when the positive is latent, and the positive effective when the negative is latent; neither energy ever rising beyond q, the maximum effective energy of the system.

4.—Negative and Positive Jars.

By way of figure, we may represent to ourselves the negative and positive energies as contained, apart from one another, in two jars. A certain part of the energy may flow from the negative into the positive jar, or from the positive into the negative; but the entire quantity in the two jars always remains the same.

5.—Relation between x and $N(r, x)$.

Attraction according to the inverse square of the distance being accepted as a fact when the particles are at ordinary sensible distances, we have

$$\frac{d^2x}{dt^2} = -\frac{c}{x^2},$$

where c is constant for the same particles. Therefore

$$\left(\frac{dx}{dt}\right)^2 = 2c\left(\frac{1}{x} - \frac{1}{r}\right).$$

But $v^2 = \left(\frac{n}{m+n}\right)^2\left(\frac{dx}{dt}\right)^2$, and $u^2 = \left(\frac{m}{m+n}\right)^2\left(\frac{dx}{dt}\right)^2$. Therefore

$$\tfrac{1}{2}(mv^2 + nu^2) = \tfrac{1}{2}\left(\frac{mn}{m+n}\right)\left(\frac{dx}{dt}\right)^2,$$

$$\text{and, } N(r, x) = N(r, r) - \frac{cmn}{m+n}\left(\frac{1}{x} - \frac{1}{r}\right);$$

the particles being supposed to be in their descending course. Or, putting k for $\frac{cmn}{m+n}$,

$$N(r, x) + \frac{k}{x} = N(r, r) + \frac{k}{r}.$$

6.—The Critical Value of x.

The quantity of energy represented by $N(r, r)$ will afterwards be found to be one half of the entire energy of the system; but at present I merely say that it is a positive quantity distinct from zero. For suppose, if possible, that it is zero. This means that, when P and Q are in the positions A and B, there is no energy in the negative jar; the entire energy of the system is collected in the positive jar. But, when P and Q have descended to C and D, the positive energy is greater than it was when they were at A and B; and therefore there is now latent in the positive jar more energy than the entire energy of the system. This, however, is opposed to the principle of conservation, which, as was pointed out in section 1, implies that, in a finite system such as we are now considering, neither jar can ever contain more than the fixed maximum q. Hence, $N(r, r)$ is not zero. Nor is it negative; for then the energy, $P(r, r)$, latent in the positive jar, would exceed q.

Since $N(r, r)$ is a positive quantity distinct from zero, it follows that, when x is made equal to r, $N(r, r) + \frac{k}{r}$ is greater than $\frac{k}{x}$; while, on the other hand, as x is taken indefinitely small, $\frac{k}{x}$ becomes greater than $N(r, r) + \frac{k}{r}$. Consequently, between r and zero, there must be

a value of x, say a, such that

$$\frac{k}{a} = N(r, r) + \frac{k}{r}, \text{ or, } k\left(\frac{1}{a} - \frac{1}{r}\right) = N(r, r),$$

$$\text{and therefore, } N(r, a) = 0.$$

I call a the critical value of x. The negative jar is then empty, and the positive jar is charged with the entire energy of the system.

Let us for a moment consider what has been happening since the last crisis, when the entire energy of the system was collected in the negative jar. That energy has been expending itself in diminishing the distance between P and Q, the amount expended being transferred to the positive jar, where it has lain in a state of latency, till now the order of things is reversed; the negative jar is empty; the positive energy becomes free, and begins to operate; and the portion of it which is expended in doing the appropriate work of positive energy passes over into the negative jar, where it lies latent till the next crisis.

7.—At the Crisis, when the Negative Jar has become Empty, the Law of Gravitation undergoes a Transformation from Attraction to Repulsion.

When $x = a$, though the negative jar is empty, the particles P and Q have acquired velocities, in virtue of which they sweep onwards towards one another across the critical positions. Now, at the crisis, the law of the reciprocal action of the particles changes from a law of attraction to one of repulsion. For suppose, if possible, that it continues as a law of attraction. Then the equation,

$$N(r, x) + \frac{k}{x} = N(r, r) + \frac{k}{r},$$

still holds. But x is now less than a; therefore $\frac{k}{x}$ is greater than $\frac{k}{a}$ or $N(r, r) + \frac{k}{r}$; hence $N(r, x)$ is negative: which implies that $P(r, x)$, the latent energy in the positive jar, exceeds the entire energy of the system. This, on the principle of Conservation, is impossible. Therefore, the force of gravity cannot continue to act as an attractive force subsequently to the crisis. The energy in the positive jar becomes effective, and repulsion is the result.

8.—The Distance between P and Q at the Crisis is the Harmonical Mean between their Distances at the Superior and Inferior Positions of Rest.

At the crisis, let the positions of P and Q be F and G. Then $FG = a$. When the distance becomes less than a, the particles, having entered the sphere of repulsion, are gradually retarded, and at length brought to rest at A' and B', where their distance is b.

We may call A', B', the inferior, and A, B, the superior, positions of rest. Since, between the positions F, G, and the positions A', B', the force is repulsive, we have

$$\frac{d^2x}{dt^2} = \frac{c}{x^2}.$$

I assume that c is the same as in the sphere of attraction. Unless there were some reason to suppose it not the same, the law of Parcimony would lead us to take for granted that no change occurs; and not only does there seem to be no reason to assume a change in this respect, but it is difficult to imagine that a constant, which indicates the amount of action between the particles at a given distance, alters its value *per saltum*. At the crisis, when $x = a$, there may be, indeed (as I have shown) there must be, reasons determining this mutual action to take the character of repulsion instead of that of attraction; but that the quantity of the reciprocal action should suddenly leap from one value to another appears to be at variance with the law of Continuity. Denoting by $P\ (b, x)$ the effective positive energy at the position in the sphere of repulsion where the distance of the particles, still in their descending course, is x, we obtain, by the same reasoning as in section (5),

$$P\ (b, x) + \frac{k}{x} = P\ (b, b) + \frac{k}{b}.$$

With respect to the sign of the terms in this equation containing k, I may observe that, the force being repulsive, this consideration, if taken alone, would have given k a different sign from what it has in the equation deduced in section (5); but, to counterbalance this, $P\ (b, x)$ is greater than $P\ (b, b)$, whereas $N\ (r, x)$ was less than $N\ (r, r)$. By putting $x = a$,

$$P\ (b, a) + \frac{k}{a} = P\ (b, b) + \frac{k}{b}.$$

But $P\ (b, a)$, at the limit of the sphere of repulsion, coincides with $P\ (r, a)$ at the limit of the sphere of attraction; and since, at that limit, the whole energy of the system is found in the positive jar, $P\ (r, a) = q$. Therefore $P\ (b, a) = q$. Also, since the Kinetic Energy of the system has, on the whole, been neither increased nor diminished in the passage of P and Q from the superior to the inferior positions of rest, no increase or diminution has taken place in the quantity of energy in either jar. Therefore

$$N\ (r, r) = N\ (b, b), \text{ and, } P\ (r, r) = P\ (b, b).$$

$$\therefore q + \frac{k}{a} = P\ (r, r) + \frac{k}{b} = q - N\ (r, r) + \frac{k}{b}.$$

$$\text{Therefore } k\left(\frac{1}{b}-\frac{1}{a}\right)=N(r, r).$$

$$\text{But, by section (6), } k\left(\frac{1}{a}-\frac{1}{r}\right)=N(r, r).$$

$$\therefore \frac{1}{b}+\frac{1}{r}=\frac{2}{a}.$$

9.—When P and Q are in Positions of Rest, whether Superior or Inferior, the Quantities of the Negative and Positive Energies in the System are Equal.

In the inferior positions of rest, the quantity of energy in the negative jar is $N(b, b)$ or $N(r, r)$. Hence, $N(r, r)$ is the quantity of positive energy that has been expended while P and Q were passing from F and G to A' and B'. From A' and B' the particles are driven apart till the limit of the sphere of repulsion is again reached; and, in effecting this, an additional quantity, $N(r, r)$, of positive energy is expended; so that the whole positive energy expended while the particles continue within the sphere of repulsion is $2\left\{N(r, r)\right\}$. But, as the reign of attraction ended, and that of repulsion began, with the circumstance of the negative jar being empty, so, if the two sorts of energy have a parallel relation to one another, we must suppose that the reign of repulsion ends, and that of attraction re-commences, with the circumstance of the positive jar being empty.* If this be so, then $2\left\{N(r, r)\right\}$ represents the entire energy of the system; and therefore $N(r, r)=P(r, r)$, and $N(b, b)=P(b, b)$.

10.—Higher Law under which the Law of Gravitation is Contained, and of which it is an Expression within Certain Limits.

The conclusions at which we have arrived imply that the law of gravitation does not prevail universally, but that it is only the form which a higher law takes within certain limits. That this higher law may receive convenient algebraical expression, let E_x denote the *effective* energy when the particles, having passed the positions of rest in the sphere, whether of attraction or of repulsion, in which they are moving, are at the distance x from one another. The equation, which represents the motions of P and Q in the spheres of attraction and repulsion alike, is

$$E_x=\pm k\left(\frac{1}{a}-\frac{1}{x}\right);$$

the positive sign of k being taken within the sphere of attraction, and the negative within the sphere of repulsion. It would be easy

* This is tantamount to saying that perfect elasticity prevails between the particles: and this, on the supposition on which the paper proceeds, namely, that none of the energy of the system is dissipated, while it is not increased *ab extra*, is involved in the principle of Conservation.

to show that this is merely a summation of the results established in the previous sections of the paper; but, instead of doing this, we shall point out how, assuming the wider generalization embodied in the equation given—a generalization which, apart from its greater width, has the advantage, over the law of gravitation, of exhibiting the motion of P and Q in its relation to the quantity of effective energy—the law of gravitation can be deduced as valid within certain limits, and as undergoing transformation, beyond these limits, into a law of repulsion.

First, let the particles be considered when they are moving within the sphere of attraction. Then the effective energy is the negative. Hence, E_x is the value of $N(r, x)$ after the positions of rest have been passed. But, between the time when the particles were in the positions of rest and the instant under consideration, an expenditure of negative energy, equal in amount to $\frac{1}{2}(mv^2 + nu^2)$, has taken place. Hence,

$$E_x = N(r, r) - \tfrac{1}{2}(mv^2 + nu^2).$$

Substitute for E_x its value in the assumed equation, taking the upper sign of k, and for $\frac{1}{2}(mv^2 + nu^2)$ its value, as found in section (5), $\frac{1}{2}\left(\frac{mn}{m+n}\right)\left(\frac{dx}{dt}\right)^2$. Then

$$N(r, r) - \tfrac{1}{2}\left(\frac{mn}{m+n}\right)\left(\frac{dx}{dt}\right)^2 = k\left(\frac{1}{a} - \frac{1}{x}\right).$$

$$\text{Therefore, } \frac{mn}{m+n}\frac{d^2x}{dt^2} = -\frac{k}{x^2}.$$

Or, putting c for $\frac{k(m+n)}{mn}$,

$$\frac{d^2x}{dt^2} = -\frac{c}{x^2}.$$

Next, let the particles be considered when they are moving within the sphere of repulsion, into which they must of necessity enter. Then the effective energy is the positive. Hence E_x is the value of $P(b, x)$, after the inferior positions of rest, whose distance from one another is b, have been passed. That is,

$$E_x = P(b, b) - \tfrac{1}{2}(mv^2 + nu^2).$$

Therefore, taking now the lower sign of k in the assumed value of E_x,

$$P(b, b) - \tfrac{1}{2}\frac{mn}{m+n}\left(\frac{dx}{dt}\right)^2 = -k\left(\frac{1}{a} - \frac{1}{x}\right).$$

$$\text{Therefore } \frac{d^2x}{dt^2} = \frac{c}{x^2}.$$

In a subsequent paper, I shall point out the effect of the introduction of foreign energy into the system.

LEAVES THEY HAVE TOUCHED;

BEING A REVIEW OF SOME HISTORICAL AUTOGRAPHS.

BY HENRY SCADDING, D.D.

(*Continued from page 502.*)

III. AUTOGRAPHS AND OTHER LITERARY RELICS OF DISTINGUISHED OXFORD AND CAMBRIDGE MEN.

I used in my younger days to think the worn condition of many of the old stone stairways at Cambridge a touching sight. In the short flights of steps leading to the entrance doors of the porters' lodges and dining halls, and in the corkscrew staircases of the turrets, conducting up to the rooms of students, the middle part of each step was to be seen scooped out by the attrition of feet, often to such an extent that the whole series of stairs was transformed almost into a steep inclined plane, without any distinction of steps remaining—a condition of things somewhat confusing to the foot in the ascent, and more so still in the descent. Who were they who had contributed to the wear and tear shown by these curious depressions? The possessors of what distinguished names in the literature, science, and general history of England? Under the influence of what busy thoughts, what hopes, what fears, had they not in their youth hurried up and down here! And in their maturer years, with what memories and cares, and perhaps honours laden, had they not re-paced the same ways! Here were veritable footprints left by preceding travellers, not on the sands, but the sandstones, the limestones, and other rocky concretions of time. This was a thought obvious enough, that would occur every day, adding to the magic spell that clings to so many spots and buildings in the University and town of Cambridge. Similar reflections would of course arise with equal, if not greater, force, in the mind of a sympathetic sojourner in venerable Oxford.

Having by me some autograph and other literary relics of men of note in their day in the universities of Oxford and Cambridge, I have reserved them for review by themselves, and I desire that they may in some sort take the place of these indented stones, and in the

inevitable absence amongst us of other sensible footprints left by the eminent persons of whom I shall speak, I hope the trifling objects I shall produce may serve as lively mementos of their former existence, and of the manner of men they were. Over those worn stairways the footsteps of many of England's worthies have unquestionably passed. So on these leaves, these pages, the hands of several of them have undoubtedly been pressed. If there is any pleasant glamour in the one thought, there must be a certain degree of it in the other. My collection also, such as it is, will incidentally furnish forth illustrations of that part of the complex English life which has for its sphere the two ancient universities of the kingdom.

My relics, as before, consist (1) of books, once owned or handled by eminent men; or (2) of notes and other MS. fragments in the handwriting of eminent men. I begin with my Oxford relics; and first I show a volume once belonging to the Library of Christ Church. It is a folio entitled *Italia Illustrata*, published in 1602 at Frankfort, by Andreas Cambierius, and dedicated to Andreas Schottus, who, Cambierius tells us, collected the several treatises of which the volume consists at a great expense, acting at the same time as editor and reviser, and removing many blemishes from the whole. It is a cyclopædia of Italian geography and antiquities; a kind of Murray for stay-at-home travellers. Twenty-eight pieces are presented to the reader, each giving an account of the history and archæology of a particular locality. The whole is in excellent Latin. The following are the names of some of the writers: M. Antonius Sabellicus, J. Chrysostom Zanchius, Torellus Sarayna, Gaudentius, Merula, Bonaventura Castillionæus, Paulus Jovius, Bernardus Saccus, Jacobus Bracelius, Andreas Magnotius, Cæsar Orlandius, Antonius Massa, Petrus Cursius, Antonius-Sanfelicius, Ubertus Folieta, Scipio Mazella, Joan. Franciscus Lombardus, Ambrosius Leo, Gabriel Barrius, Johannes Juvenis, Clar. Marius Aretius, Antonius Philotheus, Jo. Quinctinus Hednus. By these, most of whom, except Paulus Jovius, have become obscure to us, if not to Italians, we have pleasantly-written, elaborate accounts of Venice, Aquileia, Verona, Genoa, Naples, Nola, Tarentum, Sicily, Malta, &c. For a minute account of Rome itself, the reader is referred to other works. Torellus Sarayna gives his account of Verona in the form of a dialogue, after the manner of Cicero, between himself and Jacobus Villafranca. He also gives a large collection of ancient Latin inscriptions found

at Verona, and in its vicinity. Scipio Mazella gives the inscriptions at Puteoli and Cumæ. Franciscus Lombardus describes at great length the Baths at Puteoli and Baiæ, and those of Ænaria, naming the medicinal properties of each. It appears from this treatise that there was a great rivalry among the Baths. One at Puteoli was named Balneum Olei Petrolii, because it yielded petroleum—rock oil, as we are accustomed to speak. The virtues of this bath are thus enumerated :—

> Hoc vitium lepræ, genus hoc serpiginis omne
> Tollit, et è stomacho phlegmata salsa fugat.
> Extinguit bilim, grossos subtiliat artus, &c. &c.
> Vescicam curat quoties urina negatur;
> Nulla potest melior renibus esse salus,
> Si lapides ullos, seu si patiantur arenam,
> Quælibet à morbo membra gravata juvat, &c.

(It may be remembered that years ago—long before petroleum was used for lighting purposes—this mineral fluid was imported here from the State of New York, and sold in bottles as a medicinal liniment, under the name of Seneca oil, so-called, it was reported, because the Seneca Indians, across the lake, had been accustomed to apply it with great effect to themselves.)

Although there is no formal account of Rome in the folio of Cambierius, there is incidentally a curious reference made by Bernardus Saccus to the troublesomeness of the mosquitoes in that city in his day, which may recall to ourselves experiences of our own in the primitive times. In summer, Saccus says, "prodeunt in tenebris infensæ cicindulæ, vulgo cicinsulæ dictæ, quas ego vel sucindulas, à sugendo, vel à vocis zîncino stridore cincinulas scribendas putarem. Hæc enim insectæ," Saccus continues, "vix cubili allato lumine simul adsunt, ac summisso sibilo improbo osculo nobis dormientibus insident, inflictoque fronti vulnere, humano cruore saturæ sub lucem abeunt, latentque rursus nocte reversuræ. Gloriare nunc rerum tuarum magnitudine, Roma!" exclaims Saccus, "quando tantillum animal noctes tibi tuisque Patriciis infestas facit, bellumque sine telo ciet!"—Almost the whole of the volume is printed in the Italic character. Let into the title-page is a large and very spirited woodcut of Cambierius's *impresa* or device: a lion and unicorn furiously contending against each other, without the intervention of a shield of arms between them. On the inside of the cover appears the book-plate of Christ Church, Oxford, bearing the arms

of the College, surmounted as usual by Cardinal Wolsey's hat; and below is the inscription, *Œdes Christi, in Academia Oxoniensi.* On the plate has been written the word "duplicate," to show that the book had passed out of the college collection honestly.—On the outside of my folio, stamped in gold very conspicuously, on both covers, are the following arms: Azure: two bars erm. on a chief argent three suns proper: Crest: out of a ducal coronet or, a lion's head erased gules, the erasure showing beneath the coronet, the motto: *Meliora spero.* These, I find, by reference to Burke, are the arms of Otho Nicholson, who is intimately connected with the history of Christ Church Library. The building used as the library of Christ Church had formerly been the chapel (dedicated to St. Lucia) of the Priory of St. Frideswide. At the beginning of King James the First's reign, its interior is described as being almost wholly bare and given up to flies and spiders. At this time, however, Otho Nicholson, Esq., a scholar of the college, and an examiner for the Court of Chancery, gave £800 for the purpose of renovating the library, building, buying books, and setting up cases and benches. The Earl of Dorset and Viscount Lisle added donations of twenty minæ (? pounds; properly a mina = £3 sterling) each towards the same object; John King, Bishop of London, and Dr. Edwards, Chancellor of London, gave £46 13s. 4d. William James, Bishop of Durham, gave £20; Earl Clanricard, £30. Dr. Thomas White, Canon of Christ Church, afterwards endowed the library with £6 a year, for the repair of old books and the purchase of new. In the south wall of the library of Christ Church there is to this day a tablet of black marble, bearing the following inscription:—"Hospes, quisquis es, circumfer oculos. Perantiqui et prænobilis hujus domicilii corpus intermortuum, foris, intus refinxit; unus impensis suis et novâ donavit animâ; totius quam vides exquisitæ pulchritudinis, Otho Nicholson, armiger, armarii istius literarii memorabilis instaurator. A Deo Librorum Opulentia." (In the closing motto, the following letters are cut in capitals, D, L, I, V, M, V, L, I. They give the date of the tablet; added together they make 1612.) Nicholson did not confine his benefactions to the University; he promoted the convenience of the town likewise, by bringing in, at a great expense, wholesome water to Oxford, from Hinksey Hill, by a conduit.

From the arms stamped on the covers of the volume before us, and from the date of the book, it is quite certain that this is one of

the original collection presented by Otho Nicholson to the library of Christ Church, in the renovated Chapel of St. Lucia. Very probably Otho Nicholson himself has lovingly handled it, while yet its exterior was smooth and glossy, fresh from the hands of the binder and gilder; while its leaves were yet crisp, its typography sharp, its ink brilliant. But during its sojourn within the precincts of Christ Church, who of the illustrious alumni of that body may not have pored over its pages? I think, for one, Robert Burton, author of the Anatomy of Melancholy, has done so. He was a member of Christ Church in 1599, and, bookworm as he was, he would be a frequenter of the library. The *Italia Illustrata* would be particularly attractive to him, for he was, as he tells us, ever especially delighted with the study of cosmography, although he never travelled, he says, except "in map or card, in which his unconfined thoughts freely expatiated." Eulogizing the founders of libraries, he names Otho Nicholson, and speaks of him as a founder of "ours in Christ Church." "How much," he exclaims, "are we all bound, who are scholars, to those munificent Ptolemies, bountiful Mæcenases, heroical patrons, divine spirits, that have provided for us so many well-furnished libraries as well in our public academies in most cities as in our private colleges." And in another place he actually names Schottus, the compiler of our *Italia Illustrata*, classing him with Bozius, Pomponius Lætus, Marlianus, Cavelerius, Ligonius, and other writers on cosmography. Not without some reasonable ground, then, we may please ourselves with the thought that in his day Democritus junior, as Burton was pleased to call himself, turned over the pages of our copy of the *Italia Illustrata*. Another man of note who may have done so is Ben. Jonson, who was in 1619 and previously an inmate of Christ Church, and from his scholarly predilections likely to take a special interest in the subject matter of this volume in the college library.

I have now to pass *per saltum* from the days of King James to our own era, not having in my collection at present any relic of Oxford worthies of the intervening period.

I show first two volumes from the library of the late Bishop Wilberforce, who is perhaps more distinctly remembered as Bishop of Oxford than as Bishop of Winchester, the title by which he was known at the time of his death. Both books—they are a copy of Archbishop Potter's well-known Archæological Græca, or Antiquities

of Greece—have the book-plate of the bishop, with his family arms and motto, "*Nos non Nobis*," and "Samuel Wilberforce," engraved below. Also on the title-page of each volume is his autograph, SAMUEL WILBERFORCE. I preserve likewise a note of his bearing the signature S. OXON, written throughout in a bold, hurried hand—dashed off possibly in the first-class carriage of an express train going at full speed. The bishop had, we are told, an apparatus by means of which he, to some extent, utilized the time passed in travelling, by replying, while in swift transit from one place to another, to the innumerable letters which were constantly reaching him. "The note you have kindly sent me again," the bishop says, "was never seen by me before. I consequently had not any directions by which to communicate with you. Will you take your breakfast with me at 26 Pall Mall on Friday, the 15th? I am most truly yours, S. OXON." The instantaneous death of Bishop Wilberforce, occasioned by a fall from his horse while riding with Lord Grenville, is fresh in the recollection of every one. He was a man greatly beloved; full of power, with every faculty instantly at command; brilliant, moreover, as a conversationist and wit. I remember, while in London in 1867, that on a review of the day at my lodgings in the evening, it took several pages of my memorandum book to record the extraordinary number of pleasant and clever things that were crowded into a few hours spent with the Bishop of Oxford and his friends, at his "table-round" in Pall Mall, to which the note above recited gave access.

I next offer an autograph note of another eminent Oxfordman—the present Dean of Westminster, Dr. Arthur Penrhyn Stanley, pupil and biographer of Dr. Arnold of Rugby. We have every now and then spread out before us the thoughts of the Dean, in the columns of the public prints and pages of widely-circulated magazines, showing him to be an Englishman who aims to fuse and weld together again, on a principle of nationality, the great community or society of Britain so long rent and distracted. By one of those anomalies to be met with here and there in England, Westminster Abbey, though in the diocese of London, is not under the jurisdiction of the bishop of London. Hence the Dean of Westminster is enabled to do some things which a clergyman elsewhere cannot do. Thus, not long since the Dean caused Max Müller, a layman, to read a lecture there on Missions; and lately, Dr. Caird, a presbyterian

minister from Scotland, delivered a discourse in the Abbey. Dean Stanley and his wife, lady Augusta, are known to be private friends of the Queen's, who from time to time drops in at their tea-table without ceremony, glad to have a few moments unartificial communion with non-courtiers,—just as she so evidently enjoys doing with honest Scottish folk when sojourning at Balmoral.—The note which I transcribe will give another glimpse into the busy, overstrained life of gifted and enlightened men, at the present epoch, when drawn within the vortex of public affairs. (The Dean has been pressed to say when he will deliver a certain lecture of which he had held out hopes to friends down at Bradford. We can conceive him in the midst of his multifarious occupations up in town replying as follows:)—"My lecture at Bradford is quite uncertain; but it cannot, under any circumstances, be before the winter. Many thanks for your kind invitation, of which I shall be very glad to avail myself; but at this distance of time I am unable to promise anything. Yours faithfully, A. P. STANLEY." I add a second note from the same hand, of interest to myself at least, as it recalls a very memorable visit under his guidance, to the famous Jerusalem Chamber (where Convocation was sitting at the time) in Westminster Abbey, and other amenities at the Deanery: "I shall be very glad to see you at 12 on Tuesday," he says in his note, "and will take you into the Jerusalem Chamber with the utmost pleasure. No official costume is needed. Yours faithfully, A. P. STANLEY." Not unworthy of insertion here is an autograph of Canon Liddon, one of the most eloquent of modern Oxfordmen, combining profundity of thought with facility of expression; as all will confess who have been so fortunate as to listen to him: under the dome of St. Paul's, for example, amidst assembled thousands held spell-bound by his ideas and words for an hour at a stretch. His relic is simply a request made to a friend in Christ Church, Oxford, to allow him to make use of some room in College of his, probably a lecture room, for a particular purpose. "Would you forgive me" he writes in a free, running, admirable hand, "for asking you if you would allow my guests to-morrow evening to assemble in your room at 7 o'clock. Yours very truly, W. P. LIDDON."

Next comes an autograph memento of Max Müller, Fellow of All Soul's, Oxford, and Taylorian Professor there, a great authority in the new science of Comparative Philology. I had the satisfaction

of hearing Max Müller lecture on the Nibelungen Lied at the Taylor Institute in Oxford. A note which I had made of his lecture having become, on revision, obscure in a certain respect, to myself, I applied to him for information, forwarding him at the same time "Canada and Merton"—a paper read by me before the Canadian Institute. The kind and frank reply received was the accompanying note: "Many thanks for your interesting paper on Merton. The sentiment which you refer to as forming the key-note of the Nibelunge Not was probably "Leid nach Freud," "Sorrow after Joy." Yours very truly, MAX MÜLLER."

I now show the handwriting of one who in these days has done more than any other person to educate the common mind in relation to Art, and the beautiful in Nature: Mr. Ruskin. "Modern Painters," his first production, bore on its title-page "by a Graduate of Oxford" simply. The book fell like a bomb-shell in the camp of the conventional critics and reviewers. "When public taste" the Graduate said "seems plunging deeper and deeper into degradation day by day, and when the press universally exerts such power as it possesses, to direct the feeling of the nation more completely to all that is theatrical, affected, and false in Art; while it vents its ribald buffooneries on the most exalted truth, and the highest ideal of landscape that this or any other age has ever witnessed (the reference is of course to Turner's paintings), it becomes the imperative duty of all who have any perception or knowledge of what is really great in Art, and any desire for its advancement in England, to come fearlessly forward, regardless of such individual interests as are likely to be injured by the knowledge of what is good and right, to declare and demonstrate wherever they exist, the essence and the authority of the Beautiful and the True." Since 1843 several volumes bearing the same title as the first production, viz.: "Modern Painters," have appeared with Ruskin's own name prefixed. Also "The Stones of Venice," "The Seven Lamps of Architecture," "Pre-Raphaelitism," "the Political Economy of Art," and numerous other works, constituting quite a literature on the subject of Good Taste. On account of a certain engaging egotism, a habit of having recourse to his own experience for illustrations, Ruskin has of late been compared to Montaigne. This modern celebrity is represented in my collection by a short characteristic note in his neat, airy handwriting, reading as follows: "I fear I can't stay at home to-day. I want much to

have a little talk about music, and hundreds of things; but I've some friends with me whom I must really do the best I can for out of doors when the sun shines; and it looks half-promising to-day. I will stay at home myself at all events *to-morrow*, if you will promise to come.—Ever faithfully yours, J. RUSKIN." The note is dated from Brantwood, Coniston, Lancashire. The anxiety to do his best, out of doors, for his visitors, while the sun shines, doubtless for the sake of the effects on the landscape, is characteristic of Ruskin.

I regret that I have nothing more to show of Mr. Gladstone's late Chancellor of the Exchequer, than a plain unpretending autograph signature—ROBERT LOWE. Mr. Lowe from his youth has been regarded at Oxford as one of her eminent sons, although familiarly he is spoken of there, but among the juniors only possibly, as "Bob Lowe." Before attaining distinction as a statesman, he, like our Sir Edmund Head, had been an Oxford Fellow and tutor. He has also tasted of Colonial life, having passed about nine years in Australia, where he practised law and became a member of one of the legislatures.—To make up for the absence of a sentence from the pen of Mr. Lowe, I transcribe a few words from a note in the rather carelessly formed handwriting of his colleague Mr. Forster, whose name will be associated in history with English legislation in favour of popular education. "I am come down for my re-election, and for Christmas," he says, writing from Burley-in-Wharfedale, Leeds, Dec. 20, 1868, "but I shall be at the Council office on Tuesday or Wednesday week, and I shall be settled in London by the end of the first week in January.—Yours faithfully, W. E. FORSTER." Mr. F. however is neither an Oxonian nor a Cambridge man.

Of Sir George Cornwall Lewis, an eminent Oxford statesman I have a slight representative. He was a member of Christ Church, and like Mr. Gladstone, he won laurels in literature as well as in the public service. He wrote on the Romance Languages, on the Incredibility of the Early Roman History, on the Influence of Authority in Matters of Opinion. My MS. relic of Sir George shows him like other public men embarrassed by his engagements: He writes to a friend in a clear but rather slovenly hand:—"I am much obliged to you for your kind invitation to Headingley for the 27th instant, on the occasion of a meeting of the Leeds Mechanics' Institute. I regret however to say that my engagements at that time render it impossible for me to avail myself of your kindness.—Yours &c., G. C. LEWIS."

The earl of Carlisle writes a similar excuse but in stronger terms, in the note of his which I happen to possess ; it falls into its place here, the earl having been a member of Christ Church, and while at Oxford he gained two University prize-poems and the highest classical honors. He too, when engaging in public life, continued the cultivation of his intellectual powers and tastes, becoming the author of a "Diary in Turkish and Greek Waters," Lectures on the Life and writings of Pope, and other works. In a fine, rather quaint, backward leaning hand he writes to a friend from the "Vice-regal Lodge"—he was, as we shall remember, at one time Lord Lieutenant of Ireland—thus : "Your invitation makes my mouth water, but I have no hope of being able to escape from my duties here to do what I should have liked so much in every point of view.—Very sincerely yours, CARLISLE." The Earl of Carlisle travelled through Canada some years ago and I remember his appearance well. I also recollect, in St. James' Church, where I happened at the time to be officiating, and where he worshipped several times, that he always placed in the collecting-plate, when it was presented to him, a golden sovereign.

I add now an autograph note of Gilbert Scott's—Sir George Gilbert Scott, he now is—the eminent scientific ecclesiastical and civil architect : again I admit the hand of one not in our present category—but as the designer and builder of the well-known Martyrs' Memorial and other striking erections in the University, a relic of Sir Gilbert Scott may not inapproriately appear here. He writes thus in neat, unaffected scrip, from No. 20 Spring Gardens : "I thank you for the cheque which you have kindly sent me which closes my account for the Church. I shall be most happy to do what I can in the way of sketches and directions for the decoration, indeed I did some time back communicate several times on the subject with Mr. Castell the decorator, and I will see him again on the subject and communicate with you again.—I remain, &c., GEO. GILBERT SCOTT." "The whirligig of time brings its revenges." Gilbert Scott is the grandson of Thomas Scott, the commentator, a divine not noted for love of ecclesiastical architecture or Church ornamentation.

It will not be amiss perhaps if I give just one example of those little chaffing familiar missives which are frequently passing backwards and forwards in colleges between students and others, couched in language so grotesquely technical as to be unintelligible to outsiders, reminding one of the overstrained conceits of Dickens, by

which they have perhaps been in some degree suggested. Here is the acceptance of an invitation to dinner in the handwriting of a Christ Church man of eminence; it is evident that in the invitation the proposed repast had been facetiously spoken of as a practical lecture on food, accompanied by particular experiments, to which the guests were asked to be present. The Christ Church man replies:—"It is very kind of you to offer to admit senior members of the House to one of your Lectures, and though the title of the Lecture for the 8th ("On the disintegration of muscular tissue effected by molar action, with experiments in alcoholic circulation") is alarming to an amateur, yet I hope to attend and profit by it.—Gratefully yours, C. L. Dodgson."

I now pass over to the sister university of Cambridge, and produce what examples I have of "leaves which have been touched" by men of worth and note there. My Cambridge specimens I find are more numerous than my Oxford ones: I have gathered more I suppose, as feeling a special interest in the sons of one's own *alma mater;* and for the same reason I shall be excused if I venture to interweave some of the personal recollections which here and there occur in connexion with the objects shown.

Again I begin with a volume which once had a place on the library shelves of a famous College: Trinity College, Cambridge. It is Fanshaw's translation of the Lusiad of Camoens, a folio of the date 1655. Its full title reads as follows: "The Lusiad, or Portugal's Historicall Poem, writen in the Portugall Language by Luis de Camoens, and now newly put into English by Richard Fanshaw, Esq.—Horat. Dignum laude virum Musa vetat mori, Carmen amat quisquis carmine digna facit. London: printed for Humphrey Mosley, at the Prince's Arms in St. Paul's Churchyard, MDCLV." The dedication is to the Right Honorable William, Earl of Strafford, and is crowded full of conceits and pleasant discourse, containing an anecdote of Tasso, as well as some personal matter. It will appear that Fanshaw at the time was finding shelter in a country house of the Earl's called Tankersley. Only four years previously Fanshaw had been taken prisoner at Worcester while fighting on the Royal side. A few years later he joined the King at Breda, and was knighted. "My good Lord:" thus runs the Dedication: "I cannot tell how your Lordship may take it, that in so uncourted a language as that of Portugall should be found extant a poet to rival your

beloved Tasso. How himself took it, I can ; for he was heard to say (his great 'Jerusalem' being then an embryo) *he feared no man but Camoens.* Notwithstanding which he bestowed a sonnet in his praise. But, admitting the Tuscan superior ;—yet, as *he* with some anger of Guarini, when he saw, by the unquestionable verdict of all Italy, so famous a laureate as himself, by that man's *Pastor Fido* outstripped in the dramatic way of poetry, se non havuto visto il mio Aminta (because indeed the younger, for a lift in this kind, was beholding to the elder) :—So, and for the same cause, might my Portingal (Portuguese) have retorted upon him with reference to his own epic way.—*If he had not seen my Lusiad, he had not excelled it.* Since then I find Horace in the days of old held himself accountable to *his* potent friend Lollio for the profits of those vacant hours which *he* passed in his proper villa, whilst Lollio lay ledger in Rome about that which was the great domestic glory of the Roman nobility of those times :

> Trojani belli Scriptorem, Maxime Lolli,
> Dum tu declamas Romæ, Prœneste relegi,
> Whilst thou, great Lollio, in Rome dost plead,
> I, in Præneste, have all Homer read.—(Hor. l. 3. Ep. 2)

How much more obliged am *I* to bring unto your Lordship this Treasure-trove, which, as to the second life, or rather being, it hath from me in the English tongue, is so truly a native of Yorkshire, and holding of your Lordship, that from the hour I began it, to the end thereof, I slept not once out of these walls ? And if the same Horace proceed :

> Qui, quid sit pulchrum, quid turpe, quid utile, quid non,
> Plenius ac melius Chrysippo et Crantore, dicit,
> Who what is right, what not, what brave, what base,
> Clearer and better than the Stoics, says—

Whether this poet also, however disfigured in the translating, yet still retaining the old materials, both political and moral, on a truer and more modern frame of story and geography than that of Homer —et quamvis plebeio tectus amictu, Indocilis privata loqui,—shall not be valuable on the like account, I appeal to your Lordship, whose devoted (since he turned Englishman) he is, by the title I have already mentioned, and by as many more, as I am, my Lord, your Lordship's humble servant, Richard Fanshaw. From your Lordship's Park of Tankersley, May 1, 1655." The book is printed throughout exactly in the style of the first folio Shakspeare, with heavy and worn

type like that used by Isaac Jaggard and Edward Blount, with the same motley mixture on each page of the Roman and Italic letter; all emphatic words beginning in the German fashion with a capital; the same uncouth and not always constant orthography; the signs of elision omitted; the proper names in small capitals, the U's and double U's seeming to cause especial trouble, the former being usually given as V's, and the latter as two V's disconnected, (whence our present form of W has come); frequently in the midst of a proper name, a letter larger or smaller than the rest, showing that the supply of small caps in the office was limited.—As to the translation itself, it may be said that Fanshaw's Camoens, read from the time-darkened pages of this first edition of 1655 might readily be taken for an original poem of the period, so easy and idiomatic is the style, so bold and powerful the language. In some complimentary verses prefixed, Sir John Denham, condemning servile translators, contrasts their style with that of Fanshaw, apostrophising him thus :—

> A new and nobler way thou dost pursue,
> To make translations and translators too.
> They but preserve the ashes, thou the flame,
> True to his sense, but truer to his fame.

The book-plate of the library of Trinity College has been removed to the back of the title-page in my folio Fanshaw. It has on it the motto *Virtus vera nobilitas*, and below is a medallion of Henry VIII. Trinity College, Cambridge, adores in some sort the shade of a Henry; but it is not, as at Eton, Henry VI. Gray, we shall remember, speaks in his ode xi of—"Either Henry,

> The murder'd saint and the majestic lord
> That broke the bonds of Rome."

It is the latter that Trinity is constrained to honour, as being its founder; his statue is to be seen over the gateway, with the royal arms below. The other Henry, however, "the murder'd saint," *is* honoured at Cambridge as a benefactor to King's, a college closely associated with Eton, where, as many of us have seen, a statue of Henry VI stands in the quadrangle.

The leaves of the copy of Fanshaw's Camoens before us have probably been turned over by many a right hand cunning in the building up of verse that has not perhaps in some instances even yet wholly perished. Andrew Marvell was at Trinity College subsequently to 1655, and Dryden and Cowley, to say nothing of later

names. In studying the translation, some one has here and there given proof, by manuscript annotations, that he had read the poem in Portuguese also. To certain curious lines and expressions he has annexed the MS. note "Not in the original." In one place he has detected, as he thinks, the source of some phraseology used by the poet Gray in the 1st stanza of *The Fatal Sisters*, from the Norse. Fanshaw renders the 31st stanza of the fourth canto of the Lusiad thus :—

> Now through the darkned Ayre barbd Arrows fleet,—
> Javelins, with other shott, fly whizzing round,
> Vnder the fiery *Coursers'* yron *Feet*,
> The Earth doth tremble, and the Vales resound ;
> Lances are crackt, and (dropping thick as sleet)
> The Horsemen armd come thundring to the ground.
> Upon feirce Nunio's Few, fresh Foes are pact;
> *Their* Art to multiply ; *his*, to abstract.

Opposite to this, with a dash under "darkned Ayre barbd Arrows fleet," and "thick as sleet," the annotator has written :—

> Iron sleet of arrowy shower
> Hurtles in the dark'ned air.—*Gray.*

I show another volume from the library of Trinity College. This is an Amsterdam edition of Phædrus, of the year 1667, with the copious notes of Johannes Laurentius, Jurisconsult. It contains a book-plate bearing the college arms with the inscription below :—"Collegium SS. et Individuæ Trinitatis in Academiâ Cantabrigiensi," and on the last page "Duplicate, Trin : Coll : Cam : 1859" is stamped. The book has numerous beautifully executed illustrations on copper let into the text, all of them quaint and curious. The large engraved title-page shows the Emperor Augustus, seated, presenting a cap of Liberty to Phædrus, who is in the act of writing from the dictation of Æsop, the latter dwarfed in stature and slightly deformed ; the expression of the countenance shrewd and humorous. At the end of the volume are very full indexes. The hands of innumerable great scholars have probably handled this copy of Phædrus ; but notably perhaps the hands of Richard Bentley, Master of the College, who himself edited a Phædrus at Cambridge in 1726. He would naturally consult such editions of Phædrus as were to be found in the library of his own college.

One more former occupant of a place on the shelves of Trinity College Library is my copy of Mackenzie on Solitude ; a small duo-

decimo printed in 1685. Its title is "A Moral Essay, preferring Solitude to Publick Employment, and all its appanages, such as Fame, Command, Riches, Pleasures, Conversation, &c., by Sir George Mackenzie, His Majesties Advocate in Scotland, and author of *Moral Gallantry* and *Jus Regium.* 2 Kings 4. 13.—Wouldst thou be spoken of to the king or to the captain of the Host? And she answered, I dwell among my own People." This was, in its day, a famous book, and was answered by John Evelyn in 1667. "Mackenzie," Isaac Disraeli says, in his Curiosities of Literature, ii, 50, "though he wrote in favour of Solitude, passed a very active life, first as a pleader, and afterwards as a judge. While Evelyn, who wrote in favour of public employment being preferable to solitude, passed his days in the tranquillity of his studies, and wrote against the habits which he himself most loved. By this it may appear," observes Disraeli, "that that of which we have the least experience ourselves, will ever be what appears most delightful." I cannot but think that among the number of those who have turned the pages of this copy of Mackenzie's Essay, Sir Isaac Newton must be reckoned. Himself a solitary student for many years in Trinity, the subject of the Essay would attract him. Newton's rooms in Trinity used often to be visited by me when in the occupation of Mr. Carus. They are over the principal entrance to the college, in the massive tower which constitutes the gateway. Above, in a higher storey, was his observatory, where he put to such noble use the humble reflector-telescope, constructed by himself, which is still preserved at Cambridge.

I now descend to contemporaries. I have a written relic of William Whewell, an illustrious Master of Trinity. There are many men in Universities who enjoy, and quite justly, a great repute locally, but who are little heard of outside University limits. Whewell, however, won for himself a name in the general world of British, if not European, science. He first appeared as the author of a number of elementary treatises on Mechanics, Statics, Dynamics, Geometry, and Conic Sections, which were used very generally as text-books in the lecture-rooms; but his reputation rests chiefly on two works, The History of the Inductive Sciences, and The Philosophy of the Inductive Sciences. He wrote also one of the Bridgewater treatises. In the intellectual arena of Cambridge, Whewell, as Tutor, Professor, and finally, Master of his College (Trinity), was regarded with considerable awe, on account of the

extra vigour of his mind and a certain tendency to domineer. With Everett, in his lectures entitled "On the Cam," the expression is "Trinity's honoured head;" but Bristed, in his Five Years at an English University, speaks of "Whewell's awful presence." He was a Lancashire man, of stalwart frame and powerful physique; German, perhaps, rather than English, in the character of his countenance, which was open, fresh-hued, and round. In his younger academic days he was regarded with respect by the bargees of the river and the roughs of the town, between whom and the gownsmen there used to be, some years ago, periodical passages of arms. I have myself seen serious conflicts of this kind in the streets of Cambridge; quite senseless affairs, but attended with considerable risk to skin and limbs. If on such occasions one happened to be out of his own rooms and belated somewhere with a friend, it was highly advisable, when returning home to College, to get under the lee of Whewell, or some one else of his bulk and build. I was in residence when the old-fashioned "Charley," or watch, disappeared from the pavement and the modern policeman took his place. The effect on the public peace of Cambridge was very soon apparent. Whewell has left memorials of himself in Cambridge of the old durable mediæval kind. Previous to his death, a so-called Hostel for the accommodation of Trinity students was added to the College by his munificence; also a quadrangle, known as the Master's Court. Princely endowments were afterwards bequeathed by him for the perpetual maintenance of these augmentations to Trinity. He likewise by his will established and endowed a chair of International Law, with scholarships for students in the department of science. Whewell's first wife was a sister-in-law of Lord Monteagle (Spring Rice); his second was the widow of a clerical baronet (Sir Gilbert Affleck). By the custom of England this latter lady retained her name and title after her second marriage. The invitations to the Lodge used then to run in the following curious form:—"The Master of Trinity and Lady Affleck request the honour, &c." At Cambridge it was humorously said that Whewell's name was one that ought to be whistled. This was to correct the wrong rendering of it sometimes heard Whe-well. Another little jest among undergraduates used to be that no book of Whewell's ever appeared without the assertion somewhere or another in it of Newton's Three Laws of Motion. As years rolled on, an epigrammatic saying became current.

that science was Whewell's forte, and omniscience his foible; it does not appear, however, that his acquirements in any direction were superficial. A curious story used to be told of some of the Fellows of Trinity mastering the contents of several elaborate papers on Chinese Music, which they had discovered in a Review published some years previously, and then raising, as if by accident, a discussion on the subject, expecting to take Whewell by surprise and to pose him for once. But after a brief silence, the observation quietly came: "Ah, I see you have been looking into the — Review of the year —. I have had reason to alter my ideas in regard to Chinese Music considerably since then." Whewell himself was the author of the articles which had been so laboriously crammed up for the occasion.—The manuscript relics which I preserve of Whewell are, first, a note addressed from "Trin. Coll." to the Editor of the *Philosophical Magazine*, accompanying matter for that periodical. It is characteristic of Whewell's ever busy intellect. "I send you," he says, "an account of the last meeting of the Philosophical Society here, which I shall be glad if you will insert in the *Philosophical Magazine* of next month, including the abstract of Mr. Murphy's paper and Prof. Airy's communication. I send you also a notice of some remarks of Berzelius, which I shall be glad if you can find room for. Yours faithfully, W. WHEWELL." And, secondly, a cordial welcome addressed by him to a friend or relative, on hearing of his intended visit to Cambridge. He happens to speak incidentally of the war raging at the time between the Northern and Southern States. "I am glad," he says, "that you are coming to the British Association: you shall have Victor's room, or some other, and will consider the Lodge your home in all other respects. . . . I am quite prepared to believe all that you tell me of McClellan. He seems to me to have shown great generalship. But I am afraid the Northerners have lost their opportunity of making a magnanimous end to the war when they were successful. I do not see now," he continues, "what end is possible except an end from pure exhaustion. Certainly both parties have shown great military talents on a large scale; but that is small consolation for the break up of such a constitution as theirs; and I fear that the cause of the black man's liberty is losing rather than gaining by the conflict. We have been in Switzerland," he then adds, "for a fortnight, and are now returned to our usual occupations. I am sorry that we have not seen our own dear Lakes this summer."

This note is dated from Trinity Lodge, Cambridge, Sep. 22, 1862. The hand is minute and clear, and not indicative of the imperious character which the writer was reported to possess. Whewell's death was occasioned by a fall from his horse in 1866. I add a brief eulogy pronounced at the time by Christopher Wordsworth, then Archdeacon of Westminster. It is an old friend's grateful testimony to the many excellent gifts and traits of character conspicuous in Whewell. "Before I proceed," Wordsworth said at a meeting of the Anglo-Continental Society held at Willis' rooms in London, "to move the next resolution, I must crave leave to give vent to personal feelings. I have come this morning from the west of England to London, where I have met with that sorrowful intelligence from Cambridge which has grieved so many hearts. It was my privilege," he said, "just a fortnight ago, to be enjoying the delightful hospitality of Trinity Lodge, a place endeared to me by so many delightful recollections, private and public, together with some members of my family; and it was there our happiness to enjoy the society of him, who though he had passed his three score years and ten, retained the vigour and buoyancy, and even the joyousness of youth, overflowing from the largeness of his heart with kindly and genial tenderness. This is not the place," he continued, "for dwelling on those intellectual gifts, with which he was endued in rich abundance, almost without an equal in his own College and University; nor may I dilate here on the happy consecration of those intellectual gifts to the cause of Christianity; but I may ask permission to say, that if there ever was a noble and magnanimous spirit, disdaining all that was low or mean, petty or paltry, loving whatever was honourable, high and holy, it was that of the late Master of Trinity College. Forgive this poor tribute from one who had the honour of enjoying his friendship for about forty years. *His saltem accumulem donis, et fungar inani Munere.*" Wordsworth speaks of Trinity Lodge as a place endeared to him by recollections private and public. He had himself been a Fellow; and his father was for many years Master. He had also been Public Orator, an elected functionary who on all public occasions is the mouthpiece of the University; and in this capacity I have often heard him deliver himself in the Senate House in fine Ciceronian Latin. My transcript from an autograph relic of Christopher Wordsworth, who is now Bishop of Lincoln, shall be one having reference to a personage once well known among our-

selves. "There is no name," the note says, "more honoured by good men in England, among Anglo-American bishops, than that of Bishop Strachan of Toronto."—Dr. Wordsworth, the Master of Trinity, was a Conservative of a strict type. Many of his Fellows were known to be advanced Whigs, and to be in confidential communication with Earl Grey and other members of the Government. Peacock, Snowball, and one or two other Fellows of the Conservative College of St. John's, were also of the advanced school. The period of 1832 and onwards, was an agitated one. The air was full of Reform, which, to the minds of not a few, meant Revolution. We, youthful onlookers, too unwotting at the time, of the grave issues at stake in Church and Commonwealth, used occasionally to amuse ourselves by marking the countenances of our superiors, detecting, as we would fancy, the interchange, now and then, of unamiable glances between groups known to be politically opposed; between the Master of Trinity, for example, and *his* friends, and Whewell, or Sedgwick, or Thirlwall, and *their* friends, as they passed and repassed each other when pacing round and round, for exercise, on a rainy day, the three sides of the cloisters in Neville's Court. There, dons of the highest grade, used to be seen intermingled with the ordinary ruck of M.A's, B.A's, questionists, three-year men, and other undergraduates, down even to freshmen, all in rapid circulation, but in non-interfering streams,—the whole Court resounding with animated talk heard above the quick, energetic patter of stout-soled shoes on the stone pavement of the cloisters.—On a lesser scale, a like curious scene of collected notabilities, passing and repassing one another in groups, at a modest pace however now, was to be beheld in the ante-chapel of Trinity on Sunday afternoons, just before Divine service began, while the men and others were assembling. Here, again, we detected glances, slightly defiant, interchanged, intensified by the glare given to the eyes by the intervention of spectacles worn in many instances, the lenses in some of them being of the old-fashioned large circular kind, seen in the portraits of Sir Joshua Reynolds and Bishop Horne, requiring the countenance to be brought round, sometimes in a sudden and startling manner, for the purpose of fairly confronting the object.—From an autograph letter of Dr. Wordsworth's I now transcribe a brief passage. Again we have a glimpse into a busy English life. "I *must* be in Cambridge," he says to his correspondent, "on Thursday at the latest, as we have much important

business with meetings of the Eight and Sixteen, both on Friday and Saturday. If my Brother is with you," he continues, "will you say that I am to be in Cambridge by the time mentioned, and that I shall be most happy to see him, and the sooner they can come after my arrival there the better, because Term will then be over, and it is very probable that business may very shortly after require my presence at Buxted and elsewhere." (Buxted was his Living. The Brother referred to was the poet.)

Another eminent man at Cambridge, well known by sight to all students of the year 1833 and downwards, was Adam Sedgwick. He was among the earliest English geologists of note, and bore the brunt of the first assaults on the new science. He was a Fellow of Trinity and the seventh occupant of the Woodwardian Professorship of geology. In 1833 he published a Discourse on the studies of the University of Cambridge, which ran through several editions and still maintains its ground. In a note to that work he thus speaks in relation to his favourite science: "We have nothing to fear from the results of our inquiries, provided they be followed in the laborious but secure road of honest induction. In this way we may rest assured we shall never arrive at conclusions opposed to any truth, either physical or moral, from whatsoever source that truth may be derived: nay, rather, as in all truth there is a common essence, that new discoveries will ever lend support and illustration to things which are already known, by giving us a larger insight into the universal harmonies of nature." He thus maintained the perfect compatibility of science with religion. In another place he asks a question as pertinent to be put to speculative philosophers in 1875 as it was in 1833." "Shall this embryo of a material world," he says, "contain within itself the germ of all the beauty and harmony, the stupendous movements and exquisite adaptations of our system, the entanglement of phenomena held together by complicated laws, but mutually adjusted so as to work together to a common end, and the relation of all these things to the functions of beings possessing countless superadded powers, bound up with life and volition? And shall we then satisfy ourselves by telling of laws of atomic action, of mechanical movements, and chemical combinations; and dare to think that in so doing we have made one step towards an explanation of the workmanship of the God of nature? So far from ridding ourselves," the Professor adds, "by our hypothesis of the necessity

of an intelligent First Cause, we give that necessity a new concentration, by making every material power, manifested since the creation of matter, to have emanated from God's bosom by a single act of omnipotent prescience." The third annual meeting of the British Association for the Advancement of Science took place in Cambridge in 1833, and Sedgwick was chosen its president for that year. In the address delivered by him on the occasion, he used language similar to the above, declaring that "man was compelled by his intellectual nature to ascend from phenomena to laws, and the moment he grasped the idea of a law he was compelled, by the very constitution of his inner mind, to consider that law as the annunciation of the will of a supreme intelligence." I preserve with care a report of this memorable meeting, especially for the sake of the autographs which it contains in *fac simile* of the numerous savans from all quarters who were present. There Sedgwick's own name appears, the counterpart of the manuscript signatures of his which I have. Like several other contemporaries of note at Cambridge, as, for example, the two Roses, Hugh James and Henry John, Sedgwick was from the north of England. His speech, in which he was very voluble and sometimes eloquent, was strongly northern in accent, as was theirs; and his countenance—long, bony, dark, and stern—was northern, perhaps Norse, in type. The relics which I possess of Professor Sedgwick are volumes, once his property, containing some curious manuscript annotations from his pen. The first book consists of two collections, bound up together, of verses by self-taught men—one named Sanderson, the other, Nicholson. The Professor, besides inscribing within both his name, "A. SEDGWICK," has recorded in characteristic language the manner in which he became possessed of the two collections, the authors of which seem to have somewhat interested him. Of Sanderson, he says: "During the summer of 1824 I visited the great quarries of Chalk near Risley, Cumberland, and purchased the following poems of the author, a common lime-burner, whose brains had been heated by the fumes of his kiln." Of Nicholson, he writes: "I met the author on the top of a coach. He was a rough son of the Muses, who was carrying bundles of his poems from village to village, and especially to the ale-houses, where he was too well known. 'In this kind of goods, I have all this side of Yorkshire to myself,'" he said. A second relic which I show of Professor Sedgwick is Richard Owen's discourse on

the Nature of Limbs, delivered, in 1849, before the Royal Institution of Great Britain. It has the Professor's autograph as before, and, besides, a multitude of his pencillings, evidently made in an eager and rapid perusal of the book.

A memento of Professor Farish, Jacksonian Professor of Natural and Experimental Philosophy, comes next. His career, however, began earlier in the University than Whewell's or Sedgwick's, but he was still giving his lectures in 1836, and I had the satisfaction of being present at some of them. They were on the practical application of mechanism to manufactures, to mining, ship building, fortification, and other matters. You might have thought it was Polonius himself who was lecturing, as you listened to the professor's simple, but earnest and effective language, and saw him suit the action to the word at every step, by constructing the part of the apparatus required, or exhibiting in use the implement spoken of. He was then quite an aged person, and the tones of his voice were those of an old man; but he spoke with vigour, and showed an unflagging enjoyment of his subject. His happy oval countenance ever wore a smile. At the close of each demonstration, he would, in a playful way, suddenly break up the structure which he had contrived for his purpose, separating it rapidly into its constituent parts; or if it should happen to have been a mould for the casting of a cannon or a bell, or the wall of a fortified town, or an isolated fortress, that he had been expatiating on, he would run his wand ruthlessly through the moist sand which had been used, and reduce the whole in a moment to a state of chaos, like a child demolishing at a blow, the tower of cards a moment before so laboriously built up. To enable him to effect promptly his numerous demonstrations, the professor had a wonderful collection of cog-wheels, cylinders, bars, pulleys, cranks, screws, and blocks, and an ingenious method of extemporizing, as it were, then and there, a contrivance for each experiment, by means of clamps which fastened together firmly and quickly, the several parts of the required apparatus, which parts, presently taken all to pieces again, would do duty equally well immediately afterwards in some other combination. When everything was ready, the Professor would give the word of command to his attendant in these terms: "Roger, make it go!" Water was then turned on, and the desired movement instantly followed. The apparatus had been long in use, and sometimes there was a slight

break-down. Once, I remember, some rusted spots in the sheet iron reservoir suddenly gave way while the Professor was mounted on the steps in front of it; the consequence was that several fine jets of water were projected horizontally from the well-filled tank, passing between parts of the Professor's robes, and descending upon us in a most mysterious way. One feat of the Professor's, I find, has survived in my memory with some vividness. I saw him make a hat; saw him clip off before our eyes, in the lecture-room, the fur of a rabbit-skin, which was supposed to be beaver; whip it up into a misty cloud by a bowstring arrangement; convert it into felt; shape it into a sort of bag; forcibly press it, all moist, upon a block, where at length the thing assumed, in some degree, the shape of a hat, with brim curled up at the sides. At several points in the earlier stages of the process, the lecturer interposed an "aside" to his audience, "Not much like a hat yet!" The manuscript relic which I possess of Professor Farish is slight, but somewhat curious. It relates to some electioneering business at Cambridge. A certain candidate is reported to have resigned; but then the letter purporting to convey that intelligence to the Vice-Chancellor may be a hoax. "My dear sir," the Professor writes: "The Vice-Chancellor should have *official* notice of the resignation of Mr. Grant. I hear he has received a *letter*, but how does he know that it is Mr. Grant's writing? I wish you had not been out, and that you and I had been able to go. I have hardly authority, and the V.-C. might ask: How do you know? The same objection does not lie to you. I think it would be well if you would take the earliest opportunity of calling as Chairman of Mr. G's committee. Yours truly, W. FARISH. 12 o'clock, Monday. P.S.—Taylor, the school-keeper, gave me the above hint." (Taylor, the school-keeper, was a well-known subordinate official, shrewdly skilled in wise-saws and ancient instances in relation to small points of ceremony and routine. School-keeper denotes caretaker of the schools, or rooms appointed for the public exercises in the several faculties. The Senate-house also is a part of his charge.) Looking into Carus's Memoir of the Rev. Charles Simeon, I lighted on a passage which exactly interprets the note just given. In a diary, under date of Nov. 19, 1822, Mr. Simeon writes: "Old Mr. Grant, with Professor Farish, called on me and dined with me. It was a great grief to me, that I could not vote for his son on Tuesday next: but I told him that I regard my vote for a member of Parlia-

ment, not as a right, but a trust, to be used conscientiously for the good of the 'whole kingdom,' and his son's being a friend to what is called Catholic Emancipation is in my eyes an insurmountable objection to his appointment. Viewing this matter as I do, I could not vote for Mr. Robert Grant, if he were my own son. I think I shall not vote at all." Then on Nov. 26, he makes an entry which curiously refers to the very withdrawal of which Professor Farish's note speaks. "Mr. Grant having withdrawn," he says, "I feel at liberty to vote for Mr. Bankes, who is a friend both to the existing Government and the Protestant Ascendancy." A memorandum is added, that the numbers for Mr. Bankes were 419; those for the unsuccessful candidates were: Lord Hervey, 280; Mr. Scarlett, 219. It thus appears that our friend, Professor Farish, had been going about among the resident M.A's at Cambridge, on an active canvass in favour of Mr. Robert Grant, in company with "old Mr. Grant," Robert's father; and that Robert's prospect of success did not finally prove such as to induce him to persevere in the contest. This Robert Grant was afterwards the Right Hon. Sir Robert Grant, Governor of Bombay. He was also a younger brother of Lord Glenelg, remembered in Canada as Secretary of State for the Colonies at the beginning of the present reign.

I now produce a trifling, but highly prized note in the handwriting of Professor Smyth, who from 1807 to 1849 occupied the chair of Modern History in Cambridge. His lectures on Modern History and on the French Revolution have taken a high place in English literature, and continue to be reprinted. He shows himself in them to have been a man much in advance of many of his contemporaries in respect of the philosophy of history. "When we read these lectures," a great Whig authority has said, "we are at no loss to understand why Cambridge has produced of late years so many illustrious thinkers. For two entire generations the political intellect of that University was under the training of a man who, perhaps was better fitted for an instructor on the great social questions of the modern world than any one who has filled the chair of professor in this country." (This, it is expedient to observe, was written in 1856.) When the Prince Consort came up to Cambridge in 1847, to be installed as Chancellor, he paid a visit expressly to Professor Smyth, in the rooms, the Professor being at the time in failing health and unable to go out. All residents in Cambridge became perfectly

familiar with the form of Professor Smyth. In costume and manner he followed the fashion of another century. Being a layman, he usually wore, under his academic gown, coloured clothes; a blue coat with brass buttons; buff small clothes; white stockings and buckled shoes; a hat of extra width of brim, from beneath which fell a plentiful growth of long white hair that was tossed about on the shoulders by the lively movements of the head from side to side; the face wearing a cheery, youthful look. Professor Smyth was the author of the well known lines carved underneath Kirke White's medallion, formerly in All Saints, but now removed to the new chapel of St. John's College. These sculptured lines and Professor Smyth himself used particularly to interest me, as I happened to occupy in St. John's the very rooms in which Kirke White died; and frequently I used to see moving about in the college-courts outside, old Mr. Catton, Kirke White's former tutor. The autograph relic which I transcribe, is simply a casual note making an inquiry of a friend; but in it he chances to speak of a "Sheridan Memoir," which was a privately-printed notice by himself of Thomas, Richard Brinsley Sheridan's eldest son, to whom the Professor had been private tutor. "My dear Sir," he says, "the day after I sent you Roscoe's Lines, I sent you the Sheridan Memoir. Be so good as to let me know whether you have received it; that if not, I may enquire about it. I put it into the Post Office myself. With kind remembrance to the ladies, believe me, dear Sir, very sincerely yours, Wm. Smyth." The note is written from Norwich.

The Regius Professor of Greek at Cambridge in my day, was the Rev. James Scholefield. The reputation as a Greek scholar of this occupant of the chair of Porson, did not extend, perhaps, far beyond Cambridge. As a divine he was more widely known. He published an edition of the Greek Testament and a volume of Hints towards an improved translation of the same. I used to like to listen to Professor Scholefield's very solid and learned discourses in St. Michael's Church, uttered to all appearance extemporaneously; but all of them most carefully framed and deliberately worded. The Professor's manner was unimpassioned and his speech slow. With fair complexion and sandy hair, his general aspect was Scottish. A volume of the notes from which his sermons were delivered was published after his decease, and is very curious; to non-Cambridge men not very intelligible, on account of the free use of algebraical and

geometrical symbols and other abbreviations commonly employed in the solution on paper of mathematical problems. My remembrance, of Professor Scholefield is a fine copy of Hutchinson's edition of the "Cyropædia" of Xenophon, printed in bold old contracted Greek at the Theatre in Oxford, in 1727. On a fly-leaf is the autograph, J. SCHOLEFIELD.

A great notability at Cambridge, up to 1836, was the Rev. Charles Simeon, already once mentioned. Mr. Simeon had no official position in the University. He was simply a fellow of King's College, and the occupant of rooms there, holding, at the same time, the incumbency of a church in the town. It was in this way that his influence as a religious instructor was established. Considerable numbers of the young men in each successive year voluntarily attached themselves to his ministry. His rooms were open to those who had been introduced to him, every Friday evening. I occasionally dropped in with friends. All sorts of questions were put to him for solution as he sat in a rather high chair on one side of the fire-place, and answers were given in serions or jocose strain, as the case might require. I once heard him illustrate the expression "outer darkness," and administer a caution to some unknown person, at one and the same time, thus: It would appear that a week or two previous, one of his visitors had lost his academic gown at Mr. Simeon's rooms. It had been thrown down in a corner in an outer apartment, as was customary at these visits, and on the breaking up of the party, it was nowhere to be found; and that was the last of it. Mr. Simeon mentioned the case, expressing his fear that the gown had been wilfully abstracted; and he said, if this should prove to be so, and he should discover the delinquent, he would most assuredly put him into "outer darkness!" (thundering out the expression all of a sudden) that is, he would exclude him from his rooms in the future, and leave him, as it were, out in the cold. I recollect one evening, after waiting some little time at the outset for a question, and none being offered, he started those present by informing them that he had that day been present at a fox-hunt. The explanation quickly added was that while out driving in his carriage he had been uncomfortably detained somewhere along the road by the crossing of a pack of hounds over the highway in full cry after a fox. The story was wound up with an abrupt—"Now then, gentlemen, start your fox!" meaning, lose no more time in proposing something for discussion.

My relic of Simeon is a volume once his property, containing an account of the life and writings of one Gerhard Tersteegan, a German mystic, who lived 1697–1769. On the whole, this book would be greatly in harmony with Mr. Simeon's own views and temperament. But at one place Tersteegan has expressed himself in a way that has occasioned a slight outburst on the part of Mr. Simeon. Tersteegan chanced to speak with approbation of a *fourfold* division of "Justification," thus: "Justification, according to scripture and experience, is properly *fourfold*; which, being seldom sufficiently distinguished, is the cause of so much misunderstanding and so much controversy." Tersteegan here seemed to know too much on a point in regard to which Mr. Simeon held himself to be a master. He accordingly could not refrain from seizing his pen and making the following marginal note in a bold hand, to which also he appends his initials: "A very confused head had this good man, with his fourfold justification! C. S." Mr. Simeon's personal appearance is familiar from the many engravings of him which are to be seen. The profile was somewhat Jewish. Mr. Simeon always exhibited a special interest in questions relating to the modern Jews; and, I think, he believed he had Jewish blood in his veins. I was present at his funeral, and after the ceremony, descended into the vault in which the body was laid, under the nave of King's College Chapel. I shared also in a momentary panic which took place on the occasion, egress for a time being made impossible by the numbers who kept pressing in. Mr. Simeon's twenty-one octavo volumes of skeleton sermons have been, with astonishing industry, minutely indexed by Hartwell Horne. I subjoin some judicious observations once made by Professor Farish to Mr. Simeon, on the use of ridicule in controversy. Mr. Simeon had indulged in some irony in an intended reply to strictures by Dr. Pearson on himself. Farish advises him to strike the ironical expression out. He remonstrates with his old friend thus: "Aristotle somewhere says that in Oratory, *geloia* [ironical words] are most advantageously rebutted by serious arguments, and *vice versa*. And the remark is very shrewd; but it is not to be followed throughout. I don't see that you get any advantage by it in the present case, that is not counterbalanced many times over by disadvantages. Ridicule, as the test of truth, is a very powerful weapon in the hands of a disingenuous infidel; but the sentiment is false, and the weapon suits ill in the hands of a Christian. I don't see the propriety of using it in

a serious subject, against an adversary that means seriously, and aims to speak candidly, which I really think is the case at present, though I never felt less conviction from an attack, in my life, with respect to the substance of it. I think, too, your opponent is too respectable a man to be so treated, and his office too respectable also. I think yon will have the prejudices at least, not to say the ingenuous proper feelings, both of your friends and enemies against you on this point. I see no good you get by following Aristotle. But only think what an advantage his rule will give to your opponent, or rather to those who will infallibly take up the cudgels for him."

Charles Hardwick, a learned Fellow of Catharine Hall, and author of a standard "History of the Christian Church from the Seventh Century to the Reformation," and other valuable works, was once the owner of my copy of Dr. Beaven's "Account of the Life and Writings of St. Irenæus;" and he has written his name therein, C. HARDWICK. While on a summer vacation tour a few years since, Mr. Hardwick was killed by a fall down a precipice in the Alps.—I value several autograph relics of Charles Merivale, the widely-known author of the "History of the Romans," now Dean of Ely, but in my own day at Cambridge, a Fellow and Classical Tutor in St. John's College. I owe to Mr. Merivale, in the last named capacity, a debt of much gratitude for early help, guidance and consideration. I transcribe the following words from a fragment in his handwriting: "You are quite right, I am sure, in exercising wariness and caution in such matters: and do not imagine that yielding upon any one point will conciliate and check people as to others. Innovation knows no bounds, and the appetite for it grows by every concession."

I have made excerpts already in a preceding division of these papers from my autograph relics of William Wordsworth, Coleridge, Tennyson, and Lord Lytton. I might have reserved them for this place; for Cambridge is proud to have these names on the long roll of illustrious English poets who, in their youth, trod her courts. But these are names that have now ascended to an upper, wider air. I feel tempted to note that all the economy, interior and external, of the lady-university in the Princess, "with prudes for proctors, dowagers for deans," is taken from Cambridge. This is an every-day Trinity scene—substitute only students of the ruder sex for "the sweet girl-graduates in their golden hair:"

The day then droopt: the chapel bells
Call'd us; we left the walks: we mixt with those
Six hundred maidens clad in purest white,
Before two streams of light from wall to wall,
While the great organ almost burst his pipes,
Groaning for power, and rolling through the court
A long melodious thunder to the sound
Of solemn psalms, and silver litanies,
The work of Ida, to call down from Heaven
A blessing on her labours for the world.

Wordsworth was of St. John's, where a portrait of him hangs, near one of William Wilberforce, also a former member of this college. In his poem entitled the Prelude, Wordsworth speaks largely of St. John's, and of his own life there. He describes particularly the well-remembered "twin-clock" as he calls it, which strikes the hours and quarters twice, first in a low key and then in a high. On examination days, when time is exceedingly precious, a very limited portion of it being allowed for each paper, the hours and quarters, as reported by this clock, used to fly with frightful rapidity. Coleridge was of Jesus College, which he speaks of with affection in his writings. Bulwer was of Trinity Hall.—I now show a relic of Julius Charles Hare. It is a copy of the "Epistolæ Ho-Elianæ, or Familiar Letters, Domestic and Foreign, by James Howell;" who having been repeatedly dispatched to the Continent on commercial business, became an accomplished modern linguist. He lived 1594–1666. I have not lighted on any stray allusion to Howell in the "Guesses at Truth," but I have no doubt the little tome which I possess has often been in Hare's hands. It contains his book-plate and engraved name, and it treats here and there of matters of special interest to a connoisseur in orthography. My own interest in Julius Charles Hare was first awakened in 1833 at Cambridge. Everyone in 1833, and for several years later, was urged to study a work on the title-page of which appeared his name. This was Connop Thirlwall and Julius Charles Hare's joint translation of Niebuhr's Rome. It was a book, we were told, which was about to revolutionize men's ideas in regard to history in general; and we must read it; must get it up, as the phrase was: and I doubt not that with many, now well on in life, the examination of that first English translation of Niebuhr formed an epoch in their mental history. Both Thirlwall and Hare were then, or had been quite lately, Fellows of Trinity.

In Forster's Life of Landor, Hare's name as "Julius" comes before us associated with those of Wordsworth and Southey, in some lines of blank verse, written by Landor at the parsonage at Hurstmonceux when the vicar (Hare) was suffering from severe illness. (Hare had placed in Landor's hands a short unpublished poem by Wordsworth.) Landor says :—

> Derwent! Winander! your twin poets come
> Star-crowned along with you, nor stand apart.
> Wordsworth comes hither, hither Southey comes,
> His friend and mine, and every man's who lives,
> Or who shall live when days far off have risen.
> Here are they with me yet again, here dwell
> Among the sages of antiquity,
> Under his hospitable roof, whose life,
> Surpasses theirs in strong serenity,
> Whose genius walks more humbly, stooping down,
> From the same height, to cheer the weak of soul
> And guide the erring from the tortuous way.
> Hail, ye departed! hail! thou later friend,
> Julius! but never by my voice invoked
> With such an invocation—hail, and live!

"Among the sages of antiquity, under the hospitable roof" of the parsonage at Hurstmonceux, my *Epistolæ Ho-Elianæ* had once its local habitation. To me, a particle of the Hurstmonceux atmosphere clings about the volume to this day.—Julius Charles Hare adopted in the "Guesses at Truth" and in his other publications a peculiar mode of rendering a number of English words, lopping off and striking out superfluous letters. His past passive participles he generally made to end in *t*, instead of *ed*, gravely writing preacht for preached, practist for practised, cought for coughed, kist for kissed! Tree he wrote tre, simile, simily, etc., etc. Mitford, we remember, in his History of Greece, and some other writers, indulged in like crochets. From modern editions these eye sores are for the most part removed. It were to be wished that publishers would speedily take the same liberty with Hare's books. At present these peculiarities are, of course, great disfigurements, (Landor's writings want the same kind of friendly revision).—Howell, too, the author of the Epistolæ Ho-Elianæ, advocated, to some extent, a phonetic mode of spelling English. Doubtless the following address to the Intelligent Reader, at the end of the volume which I possess, was read with satisfaction by Hare at Hurstmonceux, "Amongst other reasons," Howell says,

"which make the English language of so small extent, and put strangers out of conceit to learn it, one is, That we do not pronounce as we write, which proceeds," he thinks "from divers superfluous letters, that occur in many of our words, which adds to the difficulty of the language. Therefore the author hath taken pains to retrench such redundant, unnecessary letters in this work (though the printer hath not bin so carefull as he should have bin), as amongst multitudes of other words may appear in these few, *done*, *some*, *come*; which, though wee, to whom the speech is connatural, pronounce as monosyllables, yet when strangers com to read them, they are apt to make them dissilibls *do-ne*, *so-me*, *co-me*; therefore such an *e* is superfluous," etc. etc.

The parsonage at Hurstmonceux, in Hare's time, is thus described: "You entered and found the whole house one huge library—books overflowing in all corners, into hall, on landing places, in bedrooms, and in dressing-rooms. Their number was roughly estimated at 14,000 volumes, and though it would be too much to say that their owner had read them all, yet he had at least bought them all with a special purpose; knew where they were, and what to find in them; and often, in the midst of discussion, he would dart off to some remote corner, and return in a few minutes with the passage that was wanted as an authority or illustration. Each group of books (and a traceable classification prevailed throughout the house) represented some stage in the formation of his mind—the earlier scholarship, the subsequent studies in European literature and philosophy, the later in patristic and foreign theology. The pictures which he had brought from Italy, and for which he had almost a personal affection, gave their brightness to the rooms in chiefest use. Busts also were there, not as art-furniture merely, but as memorials of men whose names he honoured, or in whose friendship he rejoiced—his brother Augustus, Schleiermacher, Niebuhr, Bunsen, Wordsworth. Seldom has any house been so in harmony with the mind and character of its occupant. Seldom also, we may add, has any one house been the meeting-place of so many of those whose names have been conspicuous in our own time, and will live in the times that follow."

As a companion picture, I give a description by a writer in the London *Guardian*, of the study of Hare's collaborateur Connop Thirlwall. The scene is in Abergwili Palace, Carmarthen, and time, just before Thirlwall's resignation of the See of St. David's.—"Past

the large low dining-room, where preparations are being made for a dinner-party, up a long passage lined with bookshelves, an open doorway admits you to a room—large, certainly, but so choked with contents that it rather reminds one of the inside of a disorderly portmanteau. It is square, but for a bay-window in which stands a library table piled with books and papers, an old black velvet sermon-case, a battered travelling writing-case, and a desk with a wine-glass of water on the ledge, and a tattered sheet of blotting-paper, on which lies a bright blue book—"Artist and Craftsman"—the last study of the owner of the room, to judge from the paper-cutter between the leaves. It is flanked by "Lectures on Casuistry," and "*Geschichte des Alten Bund.*" A portentous waste-paper basket stands beneath; both this and the paper-cutter seem fitted by their unusual proportions to cope with their daily work. A hard horse-hair chair, without arms, springs or cushions, turns its back resolutely to the garden, and its face to the army of papers. Three tables and a what-not dispersed over the room, serve as foundations for a pyramid of books, reports, periodicals—Cornhills, Macmillans, *Revues des Deux Mondes*,—thatched with the *Times*, *Pall Mall*, *Saturday*, *Guardian*, and other papers unnumbered. Two wandering bookcases, with double faces and no backs, are stacked with motley rows of volumes, at which we will look closer. Saint Anselm de Canterbury, Artemus Ward, "Science d'Histoire," a long range of Dumas, Comte's "Systeme," "Ingoldsby's Legends." Are the contents of the shelves which line the walls less miscellaneous? Hardly less surprising. Here is a favourite shelf apparently, where the books stand loosely and unevenly, as if ready for immediate action—Lettish Bible, *Biblj Swata*, Wéndisk Bible, "*Zwingli's Werke*" (pushed in hastily and upside down), a little Hindustani, and incomprehensible "Jalowicz Polyglotte der Oriental Poesie," "*Rabbinische Blumenlese.*" Nor, if you may not be surprised too far from the two modes of escape—the door and the window—are the other shelves less bewildering to a merely human understanding. Bopp, "*Sanskitsprache*," "*Koptische Grammatik*," "Miverian Archæology;" Arabic, Armenian, Celtic, Persian Dictionaries; Grammars of Icelandic, Erse, *Ægyptische*, seventy-eight volumes of "Memoires relatives à l'Histoire de France;" Dallas, the "Gay Science." (What may that be? Whist? fencing? dancing? Not at all—Criticism!) Dante, Shakspeare, Bunsen, Milton, Hallam, Sévigné, Luther. But a complete

list would take days to write and hours to read. Besides these, the library-steps are crowded with a haystack of unbound books, mostly Dutch, and two open portmanteaus are overflowing with papers and correspondence."

(A relic associated with the name of Hare's attached friend, Landor, overlooked by me before, but preserved with care, I notice now. It is a copy of the Manual of Epictetus, beautifully printed by Foulis at Glasgow, in 1750, from the library of Landor's father, Dr. Walter Landor, and showing his book-plate and name. In one of Landor's Imaginary Conversations, the interlocutors are Epictetus and Seneca; and in another, between Lucian and Timotheus, Lucian is made to say—"More of true wisdom, more of trustworthy manliness, more of promptitude and power to keep you steady and straightforward on the perilous road of life, may be found in the little manual of Epictetus, which I could write in the palm of my left hand, than there is in all the rolling and redundant volumes of this mighty rhetorician [Plato], which you may begin to transcribe on the summit of the great Pyramid, carry down over the Sphynx at the bottom, and continue on the sands half-way to Memphis." Let us suppose that the little manual of Epictetus, before Landor's mind at the moment, was this identical one from which, while in his father's library, he may have derived his first impressions of the philosophy of Epictetus!—I may note here, also, two other oversights. 1. In connection with relics of persons associated with Dr. Johnson, I omitted to describe my "Robin Hood's Garland," which is from the collection of Sir William Tite, who prized the book as having been once the property of Francis Barber, the negro body-servant of Dr. Johnson, often mentioned in the biographies of the doctor. Sir William thought fit to honour the volume with full binding in handsome calf, and to insert in it the following memorandum: "Bought by W. Morgan, bookseller and burgess of Lichfield, at the late Canon Bayley's sale, who died 1832. Bayley had it from Dr. Harwood of Lichfield, and it was well known to have been bought by him of the widow of Dr. Johnson's black servant, Francis Barber. Lichfield, 15 Dec. 1835." It is an ordinary chapbook, printed at Lichfield, with a rude woodcut of Robin Hood holding a bow, on the title-page. 2. When speaking of Continental autographs, I should have included one of the Count Oxenstiern in a copy of Montfauson de Villars' *Comte de Gabalis, ou Entretiens sur*

les Sciences secretes, printed at Amsterdam in 1715. The volume contains also the autograph and arms of Edward Finch, formerly M.P. for Cambridge University, and once ambassador to Sweden, where he seems to have procured the book, as after E. FINCH we have "Stockholm, 1733." He probably valued it for the sake of the earlier possessor, who has written his name at the foot of the title-page. J. COMTE OXENSTIERNA. This was the son of the Swedish statesman, Oxenstiern, 1583–1654, and the recipient of the world-famous dictum: *Nescis, mi fili, quantillâ prudentiâ homines regantur* —"You do not yet know, my son, with what little wisdom mankind are governed."—The young man, while acting as one of the envoys sent to draw up the terms of the Peace of Westphalia, had expressed himself too diffidently in a letter to his father, because of his inexperience in diplomatic affairs.)

I now record a memorial of the late Canon Kingsley, a graduate of Magdalen, and some time Professor of Modern History in the University. I first transcribe the entry made by him in the guest-book of a hotel at the falls of Niagara, kindly cut out and forwarded to me: it is in these terms (he associates his name, we shall see, with the venerable building which he loved so well): "Canon and Miss Kingsley, Westminster Abbey, England." But I likewise copy a hurried inquiry in his handwriting, made probably during his preparation for the lectures delivered at Cambridge, and afterwards published under the title of "The Roman and the Teuton." In the heat of composition he posts off to his bookseller the following characteristic query and order (evidently written in great haste): "I forget whether Sir F. Palgrave published his 3rd volume of the History of Normandy and England. If so, please send it to me. C. KINGSLEY."

In the Senate House at Cambridge stands a magnificent marble statue of William Pitt, by Nollekens, arrayed in an M.A. gown and in the act of speaking. When Pitt died, large sums of money were subscribed by his admirers for the purpose of establishing memorials in his honour. From this sum were defrayed the expenses of a statue in Westminster Abbey by Westmacott, another in bronze by Chantry, in Hanover Square, and this one, by Nollekens, in the Senate House. The surplus which still remained was applied to the erection of the noble building known as the Pitt Press, which is to Cambridge what the Clarendon is to Oxford. (The legend which is

seen in Latin books printed here has an Italian look—*E prelo Pittiano.*) Pitt was of Pembroke College, and also M.P. for the University. I give a transcript from my manuscript relic of this great statesman and Cambridgeman; it is the circular addressed by the head of the government to his friends in Parliament, when a session is about to open: "As Parliament," he says, "will certainly meet on Tuesday, the 15th of January, I take the liberty of requesting your attendance in the House of Commons on that day; and of apprizing you that business of the greatest importance may be expected immediately on the opening of the session, which will render a full attendance particularly desirable. I have the honor to be, &c., W. Pitt. Downing Street, 27th Nov., 1804."

I close with an autograph sign-manual of the Queen. I place it among my Cambridge mementoes, because it has happened with me that the Queen is mixed up with Cambridge associations. It was as one in the retinue of a deputation from the University that I had the good fortune once to have a close view of the Queen for several minutes, and to hear her voice. She had recently been shot at "from Oxford," as some one expressed it at the time: shot at, that is to say, by a maniac named Oxford. Addresses of congratulation at the happy escape from injury poured in, and amongst them one from Cambridge. Joining at the Thatched House Tavern the party deputed to present it, I walked with them in solemn procession to Buckingham palace. I have preserved the *ipsissima verba* which I heard the Queen speak on this occasion as a kind of royal autograph in the mind. Pronounced with peculiar correctness and with a very remarkable beauty of intonation, they were as follows:—"I gratefully acknowledge with you the providential interposition of the Father of all mercies in our recent preservation from unexpected peril. I thank you for the prayers which you offer up for my welfare, and I trust that I may continue to receive, as I shall always study to deserve, those expressions of loyalty and attachment which this occasion has so universally called forth."—This was on the 24th of June, 1840. On the Queen's left stood the Prince Consort, to whom she had been married about five months; and behind her were the Duchess of Sutherland, Lady Barham and other ladies. Near her right hand stood Lord Melbourne and others. The Prince looked unconcerned and even *ennuyé.* The Queen's countenance, I observed, assumed an expression of lively interest, as the address proceeded.

The spokesman for Cambridge was the vice-chancellor of the day, Ralph Tatham, Master of St. John's. He rather mouthed his words, and I overheard one of the "gentlemen at arms" behind us make a remark *sotto voce*, to a companion, contrasting unfavourably Dr. Tatham's delivery with that of the Duke of Wellington. The duke's voice had just been sounding in their ears. He was Chancellor of Oxford that year, and had immediately preceded us at the head of a deputation. As we were waiting in the Library at the Palace before we were summoned to go up, we saw the Duke descend the grand staircase arrayed in Academic robes and followed by many magnates of Oxford.—Very soon after the close of the Queen's reply, our whole party withdrew from the throne-room, all retiring towards the door backward. The many rooms or galleries through which we passed in our way to and fro, had grand objects of vertu placed here and there on stands along the sides, and paintings suspended from the walls. But the guards permitted no one to linger, however desirous he might be to examine and admire. The feet, I remember, as we walked along, sank in carpets of a luxurious moss-like depth of pile. —The royal autograph which I preserve is attached to a Canadian document of no particular interest, thus: VICTORIA R.—I should subjoin, perhaps, a mention of two other quasi-royal relics: one a volume from the library of the Queen's uncle, the Duke of Sussex, with his book-plate and motto: *Si Deus pro nobis, quis contra nos?*— The other, a book with the initials W. H. of the Duke of Clarence, another of the Queen's uncles, and afterwards William IV. The former is a black-letter, *Registrum Speculi Intellectualis Felicitatis Humanæ, atque Brevis Compendii de Bonæ Valetudinis Curâ*, printed at Nuremberg by Udalric Pinder, *circa* 1507. The latter is an edition of Anacreon, in Greek, with a prose translation by Gilpin, beautifully printed at York, by Wilson, Spencer & Mawman, in 1796.—Not unallied in their subject, with these royal memorials, are some verses in English and Latin which I transcribe from the autograph of their author, the scholarly Marquis of Wellesley, brother of the Duke of Wellington, overlooked by me before. "On the Burial of the Princess Augusta in the Royal Tomb House, Windsor Castle [Sept., 1840],

Open, ye last abodes of George's race!
Open your consecrated place of rest!
Receive in Peace and hope, and heavenly grace,
A spotless heart, an unpolluted breast.

Within these towers, beneath this ancient shade,
  From infancy to age her virtues grew.
Parent, revered! near You her Tomb is laid,
  To Truth and Faith her soul was trained by you.
Come to her Tomb ye gay and fair High-born!
  Learn the great lesson how to live and die!
How lowly virtues lofty rank adorn!
  What strenth in Death Religion can supply!

TRANSLATED. W.

Pandite! Regificæ requies Vos ultima Proles!
  Pandite tranquillum sancta sepulchra sinum!
Spe lætum æternâ et divinâ pace beatum
  Accipite in placidâ cor sine labe domo!
Has inter turres, veterique hâc edita sylvâ
  Crevit, ad extremos intemerata dies;
O Pater! O Matris venerabilis umbra! propinqua
  Reliquiis vestris Virginis ossa jacent;
Vos etenim primis animam hanc formastis ab annis,
  Et docilem Cœli Vos docuistis iter.
Huc ades! o genere et formâ Quæcunque refulges!
  Disce ex Augustâ vivere! disce mori!
Sperne leves fastus, et inanem stirpis honorem!
  Mors tibi constanti sit superanda Fide!

These lines, in the handwriting of the Marquis of Wellesley, are at the end of my copy of the Marquis's *Primitiæ et Reliquiæ*, privately printed for him by W. Nicol, London, 1840. The volume has the following written memorandum by the well-known London antiquarian, John Gough Nichols: "The lines at the end of this Volume in manuscript are in the autograph of the Marquess Wellesley himself. They were given me by Mr. Smith (Author of the History of Mary-le-bone) who was formerly overseer at Mr. Nicol's printing office, whilst this volume was proceeding through the press. JOHN GOUGH NICHOLS."

I have now completed a review of the three divisions of my collection of historical autographs and other literary relics—the Canadian and United States division; the British and European; and finally, the division made up of those which were reserved as having come from, or been in their day possessed or turned over by, eminent Oxford and Cambridge men. The commentary with which I have ventured to accompany the objects spoken of, will perhaps hereafter be of some use in giving interest to the whole when I deposit them, as I hope some time to do, in the library of the University, or other

safe place, where such waifs and strays will be likely, notwithstanding their comparative insignificance and want of connection, to be noted with consideration, and find sympathetic perusers "meet though few." I think a degree of virtue adheres to "leaves that have been touched" by highly-gifted and remarkable persons. Examining such remains; contemplating pages which have engaged the attention—words, and marks and signs that have come fresh from the hands—of the wise, the good, the brave, while here yet warm with life, we grasp their character now and then, from unexpected and important points of view, and occasionally realize more perfectly our brotherhood with them as men. Moreover, by such means too, I think the love of historical study may here and there be deepened, and an ambition perhaps awakened to make researches in the Past by the help of original documents, whenever the chance for doing so may be presented.

THE PLANTS OF THE EASTERN COAST OF LAKE HURON,

AND THEIR DISTRIBUTION THROUGH THE NORTHERN AND WESTERN PORTIONS OF BRITISH NORTH AMERICA.

BY JOHN GIBSON, B.A., F.G.S., F.B.S.E.; AND
JOHN MACOUN, M.A., *Botanist to the British Columbia Exploring Expedition of 1875.*

The following lists of plants collected or observed upon the eastern coast of Lake Huron, and the southern and western shores of the Georgian Bay, with their eastern and western ranges indicated by a dash (—) in the respective columns, though necessarily very imperfect in detail, are presented to the botanists of Ontario in the hope that they may be of service in elucidating some points in the Geographical Botany of Canada.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
RANUNCULACEÆ.			
Clematis Virginiana, L.	—	—	Rocky Mountains.
Anemone Virginiana, L.	—	—	"
" Pennsylvanica, L.	—	—	"
" nemorosa, L.	—	—	"
Hepatica triloba, Chaix.	—		Sitka Sound.
" acutiloba, D. C.	—		"
Thalictrum anemonoides, Mx.			
" dioicum, L.	—	—	Vancouver's Island.
" Cornuti, L.	—	—	Peace River valley.
Ranunculus aquatilis, L., var. trichophyllus, Chx.	—	—	Rocky Mountains.
" multifidus, Pursh.	—		Kotzebue's Sound.
" Flammula, L., var. reptans.	—	—	
" rhomboideus, Goldie.	—	—	
" abortivus, L.	—	—	North-West to lat. 57°.
" sceleratus, L.	—	—	McKenzie River to lat. 67° N.
" recurvatus, Poir.	—	—	Unalaska.
" Pennsylvanicus, L.	—	—	Pacific coast.
" fascicularis, Muhl.	—		
" repens, L.	—	—	Peace River valley.
" acris, L.	—	—	Vancouver's Island.
Caltha palustris, L.	—	—	Pacific coast.
Coptis trifolia, Salisb.	—	—	Sitka and Unalaska.
Aquilegia Canadensis, L.	—	—	Rocky Mountains.
Actæa spicata, L., var. rubra.	—	—	"
" alba, Bigel.	—	—	"

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
MAGNOLIACEÆ.			
Liriodendron Tulipifera, L.			
MENISPERMACEÆ.			
Menispermum Canadense, L.	—		Saskatchewan plains.
BERBERIDACEÆ.			
Caulophyllum thalictroides, Mx.	—		
Podophyllum peltatum, L.	—		
NYMPHÆACEÆ.			
Brasenia peltata, Pursh.	—		
Nymphæa odorata, Ait.	—	—	Rocky Mountains.
Nuphar advena, Ait.	—	—	Pacific coast.
SARRACENIACEÆ.			
Sarracenia purpurea, L.	—	—	Peace River valley.
PAPAVERACEÆ.			
Chelidonium magus, L.	—		
Sanguinaria Canadensis, L.	—		Saskatchewan plains.
FUMARIACEÆ.			
Adlumia cirrhosa, Raf.	—		
Dicentra cucullaria, D. C.	—		North-West America.
" Canadensis, D. C,	—		
Corydalis glauca, Pursh.	—	—	Upper British Columbia.
" aurea, Willd.	—	—	Rocky Mountains.
CRUCIFERÆ.			
Nasturtium officinale, R. Br.	—		N. W. coast of America.
" palustre, D. C.	—	—	Pacific coast.
Dentaria diphylla, L.	—		
" laciniata, Muhl.	—		
Cardamine rhomboidea, D. C., var., purpurea, Torr.	—		
" pratensis, L.	—		North-West America.
" hirsuta, L.	—	—	Pacific coast.
Arabis lyrata, L.		—	
" hirsuta, D. C.	—	—	Peace River valley.
" lævigata, D. C.	—		
" Canadensis, L.	—		
" perfoliata, L.	—	—	Rocky Mountains.
" Drummondii, Graham.	—	—	Pacific coast.
Barbarea vulgaris, R. Br.		—	Pacific coast.
Erysimum cheiranthoides, L.	—	—	Pacific coast.
Sisymbrium officinale, Scop.	—		Vancouver's Island.
" canescens, Nutt.		—	Rocky Mountains.
Brassica Sinapistrum, Bois.	—	—	
Camelina sativa, Crantz.	—		
Capsella bursa-pastoris, Moench	—	—	Vancouver's Island.
Lepidium Virginicum, L.	—	—	Rocky Mountains.
" intermedium, Gray.	—	—	

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
VIOLACEÆ.			
Viola lanceolata, L.		—	
" blanda, Willd.	—	—	Peace River valley.
" cucullata, Ait.	—	—	Arctic America.
" sagittata, Ait.	—		
" canina, L. var. sylvestris, Reg.	—	—	
" rostrata, Pursh.	—		McKenzie River, lat. 59° N.
" Canadensis, L.	—	—	Pacific coast.
" pubescens, Ait.	—		Saskatchewan plains.
CISTACEÆ.			
Helianthemum Canadense, Michx.	—	—	Saskatchewan plains.
Lechea minor, Lane.	—		
Hudsonia tomentosa, Nutt.		—	Little Slave Lake.
DROSERACEÆ.			
Drosera rotundifolia, L.	—	—	Unalaska, Pacific coast.
" longifolia, L.	—	—	
" linearis, Goldie.		—	Jaspar Lake, Rocky Mts.
HYPERICACEÆ.			
Hypericum Canadense, L.	—		
" corymbosum, Muhl.	—		
" ellipticum, Hooker.	—	—	
" Kalmianum, L.			
" mutilum, L.	—	—	
" perforatum, L.	—		
" pyramidatum, Ait.	—		Saskatchewan plains.
Elodea Virginica, Nutt.	—	—	
CARYOPHYLLACEÆ.			
Saponaria officinalis, L.	—		
Vaccaria vulgaris, Host.	—		
Silene antirrhina, L.	—	—	Pacific coast.
" noctiflora. L.	—		
Agrostemma Githago, L.	—		
Lychnis vespertina, Sibth.	—		
Arenaria serpyllifolia, L.	—		
" stricta, Michx.	—	—	Arctic Sea.
" lateriflora, Fenzl.	—		Arctic coast.
Stellaria media, Smith.	—	—	Little Slave Lake.
" longifolia, Muhl.	—		Sitka Sound.
" borealis, Bigelow.	—	—	Arctic America.
Cerastium vulgatum, L.	—	—	
" viscosum, L.	—		
" arvense, L.	—	—	Pacific coast, Oregon.
PORTULACACEÆ.			
Portulaca oleracea, L.	—		Fort Francis, Dawson route.
Claytonia Virginica, L.	—		
" Carolineana, Michx.	—		Rocky Mountains.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
MALVACEÆ.			
Malva rotundifolia, L.	—		
" moschata, L.	—		
Abutilon Avicennæ, Gaertn.	—		
TILIACEÆ.			
Tilia Americana, L.	—		Rainy River, Dawson route.
LINACEÆ.			
Linum usitatissimum, L.	—		
" striatum, Walt.			
GERANIACEÆ.			
Geranium maculatum, L.	—		
" Robertianum, L.	—		
" Carolinianum.	—	—	W. of Rocky Mts. lat. 55° N.
Impatiens pallida, Nutt.	—		Pacific coast, Oregon.
" fulva, Nutt.	—	—	British America, lat. 66° N.
Oxalis Acetosella, L.	—		
" stricta, L.	—		West of Rocky Mountains.
RUTACEÆ.			
Xanthoxylum Americanum, Mill.	—		
ANACARDIACEÆ.			
Rhus typhina, L.	—		
" glabra, L.	—		Saskatchewan plains.
" Toxicodendron, L.	—		N. W. America, Rocky Mts.
" aromatica, Ait.	—		Saskatchewan River.
VITACEÆ.			
Vitis cordifolia, Michx.	—		
" riparia, Michx.			
Ampelopsis quinquefolia, Michx.	—	—	
RHAMNACEÆ.			
Rhamnus alnifolius, L'Her.	—	—	Hudson's Bay.
Ceanothus Americanus, L.	—		
" ovalis, Bigel.	—	—	
CELASTRACEÆ.			
Celastrus scandens, L.	—		
Euonymus atropurpureus, Jacq.			
" Americanus, L., var. obovatus.			
SAPINDACEÆ.			
Staphylea trifolia, L.	—		
Acer Pennsylvanicum, L.	—	—	British America, lat. 51° N.
" spicatum, Lam.	—	—	British America, lat. 51° N.
" saccharinum, Wang.	—	—	
" dasycarpum, Ehr.	—		
" rubrum, L.	—	—	Oregon.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
POLYGALACEÆ.			
Polygala Senega, L.	—		Saskatchewan plains.
" paucifolia, Willd.	—		Saskatchewan plains.
" polygama, Walt.	—		
LEGUMINOSÆ.			
Lupinus perennis, L.	—		Behring's Strait and Arctic c.
Trifolium pratense, L.	—	—	
" hybridum.	—		
" repens, L.	—	—	
Melilotus alba, Lam.	—		
Medicago sativa L.	—		
" lupulina, L.	—		
Robinia Pseudacacia, L.	—		
" viscosa. Bent.	—		
Astragalus Canadensis, L.	—	—	Rocky Mountains, lat. 58° N.
" Cooperi, Gray.	—		
Desmodium nudiflorum, D. C.			
" acuminatum, D. C.			
" cuspidatum, L. & G.	—		
" Canadense, D. C.	—		
Lespedeza hirta, Ell.	—		
" capitata, Michx.	—		
Vicia sativa, L.	—		
" Americana, Muhl.		—	Rocky Mountains, lat. 67°, N.
Lathyrus maritimus, Bigel.	—	—	Kotzebue's Sound, Arctic Am.
" ochroleucus, Hook.	—	—	Bear Lake, lat. 67°, N.
" palustris, L.	—	—	Oregon and N. to lat. 55° N.
" palustris, L., var. myrtifolius.	—		
Apios tuberosa, Moench.	—		Woods of the Rocky Mts.
Amphicarpæa monoica, Nutt.	—	—	
ROSACEÆ.			
Prunus Americana, Marsh.	—	—	Saskatchewan valley.
" pumila, L.	—	—	Saskatchewan & Hudson's Bay.
" Pennsylvanica, L.	—	—	Rocky Mountains, lat. 57° N.
" Virginiana, L.	—	—	Great Slave Lake, lat. 62°, and [west to the Rocky Mts.
" serotina, Ehr.	—		
Spiræa opulifolia, L.		—	Saskatchewan plains.
" salicifolia, L.	—	—	Saskatchewan plains.
Agrimonia Eupatoria, L.	—	—	
Geum album, Gmelin.	—		
" strictum, Ait.	—	—	Rocky Mountains, lat. 56° N.
" rivale, L.	—	—	Rocky Mountains, lat. 56° N.
" triflorum, Pursh.	—		Rocky Mountains, lat. 56° N.
Waldsteinia fragarioides, Tratt.	—		
Potentilla Norvegica, L.	—	—	Arctic America to Sitka Sound
" Canadensis, L.	—		
" argentea, L.	—		
" arguta, Pursh.	—	—	Rocky Mountains, lat. 65° N.
" anserina, L.	—	—	Arctic America to Pacific c.
" fruticosa, L.	—	—	Kotzebue's Sound.
" palustris, Scop.	—	—	Pacific coast, Kotzebue's Sound

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Fragaria Virginiana, Ehrh.	—	—	North-West coast, lat. 64° N.
" vesca, L.	—	—	North-West coast, lat. 64° N.
Dalibarda repens, L.	—		
Rubus odoratus, L.	—		Saskatchewan plains.
" triflorus, Rich.	—	—	Rocky Mountains, lat. 56° N.
" strigosus, Michx.	—	—	Rocky Mountains, lat. 56° N.
" neglectus, Peck.	—		
" occidentalis, L.	—		
" villosus, Ait.	—		
" hispidus, L.	—		
Rosa Carolina, L.	—		
" blanda, Ait.	—	—	Bear Lake, lat. 67° N.
" rubiginosa, L.	—		
Cratægus coccinea, L.	—	—	
" tomentosa, L. var. punctata, Gray.	—	—	
" Crus-Galli, L.			
Pyrus coronaria, L.			
" arbutifolia, L., var. melanocarpa, Gray.	—	—	Saskatchewan plains.
" Americana, D. C.	—	—	Sub-Arctic America & N.W. c.
Amelanchier Canadensis, T. & G., var. Botryapium, Gray.	—	—	Sub-Arctic America.
" var. oblongifolia, Gray.	—	—	Sub-Arctic America, lat. 56° N.
SAXIFRAGACEÆ.			
Ribes Cynosbati, L.	—	—	Rocky Mountains.
" hirtellum, Michx.	—	—	Saskatchewan plains.
" lacustre, Poir.	—	—	N. and W. to the Arctic circle.
" prostratum, L'Her.	—	—	W. America to lat. 57° N.
" floridum, L.	—	—	Rocky Mountains, lat. 56° N.
" rubrum, L.	—	—	North of the Arctic circle.
" oxyacanthoides, L.		—	Rocky Mountains, lat. 56° N.
" Parnassia parviflora, D. C.		—	Rocky Mountains, lat. 53° N.
" Caroliniana, Mx.	—		
Saxifraga Virginiensis, Mx.	—	—	Rocky Mountains, lat. 56° N.
Mitella diphylla, L.	—		
" nuda, L.	—	—	West of Rocky Mountains, and [Arctic Sea.
Tiarella cordifolia, L.	—		
Chrysosplenium Americanum, L.	—		Saskatchewan valley.
CRASSULACEÆ.			
Penthorum sedoides, L.	—		
Sedum Telephium, L.	—		
HAMAMELACEÆ.			
Hamamelis Virginica, L.	—		
HALORAGEÆ.			
Myriophyllum spicatum, L.	—	—	Bear Lake, lat. 57° N.
" heterophyllum, Mx.	—		
Proserpinaca palustris, L.			
Hippuris vulgaris, L.	—	—	Sub-Arctic America, Sitka Sd.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
ONAGRACEÆ.			
Circæa Lutetiana, L.	—		
" Alpina, L.	—	—	
Epilobium augustifolium, L.	—	—	Arctic America to lat. 69° N.
" var. canescens. Wood.	—		
" palustre, var. lineare.	—	—	Arctic America.
" coloratum, Muhl.	—	—	Rocky Mountains, lat. 56° N.
" paniculatum, Nutt.			Straits of De Fuca, Pacific c.
Œnothera biennis, L.,			
var. muricata, Gray.	—	—	Rocky Mountains, lat. 56° N.
var. grandiflora, Gray.	—	—	Rocky Mountains, lat. 56° N.
Œnothera pumila, L.	—		Hudson's Bay.
Ludwigia palustris.	—		Saskatchewan plains.
UMBELLIFERÆ.			
Hydrocotyle Americana, L.	—		
Sanicula Marilandica, L.	—	—	Oregon ; Pacific c. lat 56° N.
Daucus Carota, L.	—		
Heracleum lanatum, Mx.	—	—	Rocky Mts. and Pacific coast.
Pastinaca sativa, L.	—		
Archangelica atropurpurea, Hof.	—	—	
Thaspium aureum, Nutt, var.,			
apterum, Gray.	—		
Zizia integerrima, D. C.	—		
Cicuta maculata, L.	—		Oregon, Pacific coast.
" bulbifera, L.	—		
Sium lineare, Michx.	—	—	Lake of Woods, Dawson route.
Cryptotenia Canadensis, D. C.	—		
Osmorrhiza longistylis, D. C.	—	—	Rocky Mountains, lat. 56° N.
" brevistylis, D. C.	—	—	Oregon, Sitka, Unalaska.
Erigenia bulbosa, Nutt.			
ARALIACEÆ.			
Aralia racemosa, L.	—		Rocky Mountains, lat. 54° N.
" hispida, Michx.	—	—	Hudson's Bay. Lake of Woods.
" nudicaulis, L.	—	—	Peace River valley, lat. 56° N.
" quinquefolia, Gray.	—		
" trifolia, Gray.	—		
CORNACEÆ.			
Cornus Canadensis, L.	—	—	Pacific coast, Unalaska.
" florida, L.			
" circinata, L'Her.	—	—	Lake of Woods, Dawson route.
" sericea, L.	—		N. W. coast, Vancouver's Isl.
" stolonifera, L.	—	—	Rocky Mts. & McKenzie River.
" paniculata, L'Her.	—		
" alternifolia, L.	—	—	Lake of the Woods.
CAPRIFOLIACEÆ.			
Linnæa borealis, Gronov.	—	—	Arctic circle, Kotzebue's Sd.
Symphoricarpus racemosus, Mx.	—	—	North-West coast.
Lonicera parviflora, Lam.	—		Rocky Mountains, lat. 53° N.
" " var. Douglasii.		—	Rocky Mountains, lat. 56° N.
" hirsuta, Eaton.	—	—	Edmonton, on Saskatchew. R.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Lonicera ciliata, Muhl.	—	—	Saskatchewan valley.
" oblongifolia, Muhl.	—	—	Saskatchewan valley.
Diervilla trifida, Mœnch.	—	—	Rocky Mts. & Hudson's Bay.
Triosteum perfoliatum, L.	—		
Sambucus Canadensis, L.	—		
" pubens, Michx.	—	—	Rocky Mts. Oregon and Setka.
Viburnum Lentago, L.	—		Saskatchewan valley.
" pubescens, Pursh.	—	—	Lake Winipeg, lat. 51° N.
" acerifolium, L.	—		
" Opulus, L.	—	—	Arctic circle and Rocky Mts.
RUBIACEÆ.			
Galium Aparine, L.	—		Oregon, Pacific coast.
" asprellum, Michx.	—	—	Lake of Woods, Dawson route.
" trifidum, L.	—	—	Oregon, Unalaska, Sitka.
" triflorum, Michx.	—	—	Unalaska, Sitka, Oregon, Cal.
" lanceolatum, Torrey.	—		
" boreale, L.	—	—	Oregon, North to Arctic circle.
Cephalanthus occidentalis, L.	—		
Mitchella repens, L.	—		
Houstonia purpurea, L., var. longifolia, Gray.	—	—	Saskatchewan valley.
Valeriana edulis, Nutt.			Oregon and the Rocky Mts.
COMPOSITÆ.			
Liatris cylindracea, Michx.	—		North-West Territory.
" squarrosa, Willd.		—	Edmonton, on Saskatchewan.
Eupatorium purpureum, L.	—	—	Saskatchewan valley.
" perfoliatum, L.	—		
" ageratoides, L.	—		
Aster corymbosus, Ait.	—	—	
" macrophyllus, L.	—	—	Saskatchewan valley.
" lævis, var. lævigatus, T. & G.			Lake of the Woods and Saskat-[chewan River.
" lævis, var. cyaneus, T. & G.			Saskatchewan valley.
" azureus, Lindley.	—		
" undulatus, L.	—		
" sagittifolius, Willd.	—	—	
" cordifolius, L.	—		
" borealis, Provancher.	—		Saskatchewan valley.
" multiflorus, Ait.	—		Rocky Mountains, lat. 56° N.
" miser, L., Ait.	—		
" simplex, Willd.	—		
" puniceus, L.	—	—	Hudson's Bay to Rocky Mts.
" Novæ-Angliæ, L.	—		
" ptarmicoides, T. & G.	—	—	Saskatchewan valley.
Erigeron Canadense, L.	—	—	Saskatchewan valley.
" Philadelphicum, L.	—	—	Arctic circle, Behring's Strait.
" annuum, Pers.	—		
" strigosum, Muhl.	—	—	Oregon.
Diplopappus umbellatus, T. & G.	—	—	
Solidago bicolor, L.	—	—	Saskatchewan valley.
" latifolia, L.	—		

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Solidago cæsia, L.	—		
" stricta, Ait.	—	—	Hudson's Bay & McKenzie Riv.
" Houghtonii, T. & G.			
" arguta, Ait.	—	—	Sub-Arctic America.
" Muhlenbergii, T. & G.	—		
" altissima, L.	—	—	
" nemoralis, Ait.	—	—	Saskatchewan valley.
" Canadensis, L.	—	—	Sub-Arctic America to Oregon.
" serotina, Ait.	—	—	Sub-Arctic America to Oregon.
" lanceolata, L.	—	—	Sub-Arctic America.
Inula Helenium, L.	—		
Ambrosia artemisiæfolia, L.	—		
Rudbeckia hirta, L.	—	—	Saskatchewan plains.
Helianthus strumosus, L.	—		
" divaricatus, L.	—		Saskatchewan plains.
" decapetalus, L.	—		
Coreopsis lanceolata, L.		—	
Bidens frondosa, L.	—		
" connata, Muhl.	—		
" chrysanthemoides, Mx.	—	—	Little Slave Lake, lat. 54° N.
" Beckii, Torrey.	—		
Helenium autumnale, L.	—		Sub-Arctic America to Oregon.
Maruta Cotula, D. C.	—		
Achillea Millefolium, L.	—	—	Rocky Mts. to Arctic circle.
Leucanthemum vulgare, Lam.	—	—	Oregon.
Tanacetum vulgare, L.	—		
" Huronense, Nutt.		—	Hudson's Bay West to Oregon.
Artemisia vulgaris, L.	—		
" Canadensis, Mx.	—	—	Oregon to the Arctic circle.
" biennis, Willd.	—		McKenzie River & Rocky Mts.
" Absinthium, L.	—		
Gnaphalium decurrens, Ives.	—	—	
" polycephalum, Michx.	—		
" uliginosum, L.	—		Oregon.
Antennaria margaritacea, R. Br.	—		Rocky Mts. Unalaska & Oregon.
" plantaginifolia, Hook.	—	—	Rocky Mountains.
Erechthites hieracifolia, Raf.	—		Saskatchewan valley.
Cacalia tuberosa, Nutt.			
Senecio vulgaris, L.	—		Hudson's Bay.
" aureus, L., var. lanceolatus.	—	—	Rocky Mountains.
Centaurea Cyanus, L.	—		
Cirsium lanceolatum, Scop.	—		
" undulatum, Spreng.			Oregon.
" discolor, Spreng.	—		
" muticum, Michx.	—	—	Saskatchewan valley.
" arvense, Scop.	—	—	Saskatchewan valley.
Lappa major, Gærtn.	—	—	
Lapsana communis, L.	—	—	
Cichorium Intybus, L.	—	—	
Hieracium Canadense, Michx.	—	—	McKenzie River, lat. 66° N. to [Oregon.
" scabrum, Michx.	—	—	
Nabalus albus, Hooker.	—	—	
" altissimus, Hooker.	—	—	

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Nabalus racemosus, Hooker.			N. to lat. 56° in Peace River v.
Taraxacum Dens-leonis, Desf.	—	—	Pacific coast.
Lactuca elongata, Muhl.	—	—	Saskatchewan valley.
Mulgedium leucophæum, D. C.	—	—	Oregon and Saskatchewan v.
Sonchus oleraceus, L.	—	—	Saskatchewan valley.
" asper, Vill.	—	—	Oregon.
LOBELIACEÆ.			
Lobelia cardinalis, L.	—		Saskatchewan valley.
" syphilitica, L.	—		
" inflata, L.	—		Saskatchewan v. & Hud. Bay.
" spicata, Lam.	—		Peace River valley, lat. 56° N.
" Kalmii, L.	—	—	N. to lat. 60°, McKenzie River.
CAMPANULACEÆ.			
Campanula rotundifolia, L.	—	—	N. to lat. 64°, McKenzie River.
" var. linifolia, Gray.		—	North-West coast to lat. 64°.
" aparinoides, Pursh.	—	—	Saskatchewan valley.
" Americana, L.			
ERICACEÆ			
Gaylussacia resinosa, T. & G.	—		Saskatchewan valley.
Vaccinium Oxycoccus, L.	—	—	Rocky Mountains, lat. 56° N.
" macrocarpon, Ait.	—	—	Pacific coast.
" Pennsylvanicum, L.	—	—	Saskatchewan valley.
" Canadense, Kalm.			
" Corymbosum, L.	—		
Chiogenes hispidula, T. & G.	—	—	Rocky Mt. summits, lat. 54° N.
Arctostaphylus Uva-ursi, Ep.	—	—	Pacific coast.
Epigaea repens, L.	—	—	Saskatchewan plains.
Gaultheria procumbens, L.	—		
Cassandra calyculata, Don.	—	—	N. to lat. 60°, & W. to Rocky Mts.
Andromeda polifolia, L.	—	—	Arctic sea shore.
Kalmia glauca, Ait.	—	—	N. to lat. 60°, and near Pacific c.
Ledum latifolium, Ait.	—	—	Pacific coast to lat. 59° N.
Pyrola rotundifolia, L., var. [uliginosa, Gray.	—	—	Bear Lake, lat. 67° N.
" rotundifolia, L., var. [asarifolia, Gray.	—	—	Bear Lake, lat. 67° N.
" elliptica, Nutt.	—		Saskatchewan valley.
" chlorantha, Swartz.	—	—	Bear Lake, lat. 67° N.
" secunda, L.	—	—	Shores of Pacific.
Moneses uniflora, Gray.	—	—	N. to lat. 64°, & W. to Vancouver.
Chimaphila umbellata, Nutt.	—	—	Rocky Mountains in lat. 53° N.
Monotropa uniflora, L.	—	—	
Monotropa Hypopitys, L.	—		
AQUIFOLIACEÆ.			
Ilex verticillata, Gray.	—		
Nemopanthes Canadensis, D. C.	—	—	
PLANTAGINACEÆ.			
Plantago major, L.	—	—	N. to lat 68° on the McKenzie.
" lanceolata, L.	—		

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
PRIMULACEÆ.			
Primula farinosa, L.		—	N. to lat. 56° on the McKenzie.
" Mistassinica, Michx.		—	Great Bear Lake, lat. 67° N.
Trientalis Americana, Pursh.	—	—	Saskatchewan valley.
Lysimachia thyrsiflora, L.	—	—	McKenzie River, lat. 60° N.
" stricta, Ait.	—	—	Saskatchewan valley.
" quadrifolia, Ait.	—		
" ciliata, L.	—	—	Puget Sound, Pacific coast.
" longifolia, Pursh.			
Samolus Valerandi, L., var. Americanus, Gray.	—		North-West coast.
LENTIBULACEÆ.			
Utricularia vulgaris, L.	—	—	Lakes near the Rocky Mts.
" intermedia, Hayne.	—	—	Bear Lake, lat. 67° N. & Rocky [Mountains.
" cornuta, Michx.			
Pinguicula vulgaris, L.		—	McKenzie River, lat. 60° N.
OROBANCHACEÆ.			
Epiphegus Virginiana, Bart.	—		
Conopholis Americana, Wallr.	—		
SOROPHULARIACEÆ.			
Verbascum Thapsus, L.	—		Saskatchewan valley.
" Blattaria, L.	—		
Linaria vulgaris, Mill.	—		
Scrophularia nodosa, L.	—		Pacific coast.
Chelone glabra, L.	—		
Penstemon pubescens, Solander.	—		
Mimulus ringens, L.	—	—	Saskatchewan valley.
Gratiola Virginiana, L.	—		North-West coast.
Ilysanthes gratioloides, Benth.	—		
Veronica Anagallis, L.	—		Rocky Mountains, lat. 56° N.
" Virginica, L., Gore Bay. (Dr. Bell).			
" Americana, Schwein.	—	—	Norway House, Lake Winipeg.
" Scutellata, L.	—	—	North-West coast.
" serpyllifolia, L.	—	—	Sitka and Unalaska.
" peregrina, L.	—	—	McKenzie River to Unalaska.
" arvensis, L.	—		
Gerardia purpurea, L.	—		Saskatchewan valley.
" aspera. Doug. (Dr. John Bell).			Eastern flanks of Rocky Mts.
" flava, L.			
" quercifolia, Pursh.			
Castilleia coccinea, Spreug.	—	—	Saskatchewan valley.
Pedicularis Canadensis, L.	—		Lake Winipeg.
Melampyrum Americanum, Mx.	—	—	Peace River valley, lat. 56° N.
VERBENACEÆ.			
Verbena hastata, L.	—		Saskatchewan valley.
" urticifolia, L.	—		Saskatchewan valley.
Phryma Leptostachya, L.	—		

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
LABIATÆ.			
Teucrium Canadense, L. (R. aux Sables).	—		
Mentha viridis, L.	—		
" piperita, L.	—	—	
" Canadensis, L.	—	—	McKenzie River & Rocky Mts.
Lycopus Virginicus, L.	—	—	Saskatchewan valley.
" Europæus, L., var. sinuatus.	—	—	North-West coast of America.
Satureia hortensis, L.	—		
Calamintha glabella, Benth. var. Nuttallii, Gray.			
Calamintha Clinopodium, Benth.	—	—	Norway House, Lake Winipeg.
Collinsonia Canadensis, L.			
Monarda didyma, L.			
Monarda fistulosa, L.	—	—	Rocky Mountains, lat. 56° N.
Nepeta Cataria, L.	—	—	Little Slave Lake.
Brunella vulgaris, L.	—	—	North-West coast.
Scutellaria parvula, Michx.	—		Saskatchewan valley.
" galericulata, L.	—	—	McKenzie River to Pacific c.
" lateriflora, L.	—	—	North-West America.
" versicolor, ? Nutt. (Dr. Bell).			
Marrubium vulgare, L.	—		
Galeopsis Tetrahit, L.	—	—	
Stachys palustris, L. var. aspera, Gr.	—	—	N. W. America & McKenzie R.
Leonurus Cardiaca, L.	—		Norway House, Lake Winipeg,
BORRAGINACEÆ			
Echium vulgare, L.	—		
Symphytum officinale, L.	—		
Onosmodium Carolinianum, D.C.	—		
Lithospermum arvense, L.	—		
" hirtum, Lehm.	—	—	
Myosotis palustris, With. var. laxa.	—		
Echinospermum Lappula, Lehm.	—		North-West Pacific coast.
Cynoglossum officinale, L.	—	—	Saskatchewan valley.
" Virginicum, L.	—	—	Rocky Mountains, lat. 53° N.
" Morisoni, D. C.	—	—	Rocky Mountains, lat. 56° N.
HYDROPHYLLACEÆ.			
Hydrophyllum Virginicum, L.	—		North-West Pacific coast.
" Canadense, L.			
POLEMONIACEÆ.			
Phlox divaricata, L.	—		
CONVOLVULACEÆ.			
Calystegia sepium, R. Br.	—	—	Rocky Mountains, lat. 53° N.
Calystegia spithamea, Pursh.	—	—	Saskatchewan valley.
Cuscuta Gronovii, Willd.	—		

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
SOLANACEÆ.			
Solanum Dulcamara, L.	—		
" nigrum, L.	—		North-West Pacific coast.
Physalis grandiflora, Hooker.	—	—	Saskatchewan River.
" viscosa, L.			
Datura Stramonium, L.	—		
GENTIANACEÆ.			
Halenia deflexa, Griseb.		—	Rocky Mountains, lat. 56° N.
Gentiana crinita, Froel.	—		
" detonsa, Fries.			Bear Lake and Arctic Sea shore.
" alba, Muhl.	—	—	
" Andrewsii, Griseb.	—		
" Saponaria, L. var. linearis.		—	
Menyanthes trifoliata, L.	—	—	Rocky Mts. and N. W. coast.
APOCYNACEÆ.			
Apocynum androsæmifolium, L.	—	—	Hudson's Bay.
" Cannabinum, L.	—	—	Pacific coast in N. W. America.
ASCLEPIADACEÆ.			
Asclepias Cornuti, Decaisne.	—		Saskatchewan valley.
" phytolaccoides, Pursh.	—		
" incarnata, L.	—		Saskatchewan valley.
" tuberosa, L.	—		Carleton House, Saskatchewan.
OLEACEÆ.			
Fraxinus Americana, L.	—		Saskatchewan valley.
" pubescens, Lam.	—	—	Saskatchewan valley.
" Sambucifolia, Lam.	—	—	Saskatchewan valley.
ARISTOLOCHIACEÆ.			
Asarum Canadense, L.	—	—	Pacific coast.
PHYTOLACCACEÆ.			
Phytolacca decandra, L.	—		
CHENOPODIACEÆ.			
Chenopodium album, L.	—	—	Bear Lake, lat. 67° N.
" hybridum, L.	—	—	Bear Lake, lat. 67° N.
" urbicum, L.	—		
" Botrys, L.	—		
Blitum capitatum, L.	—	—	Great Slave Lake.
AMARANTACEÆ.			
Amarantus paniculatus, L.	—		Saskatchewan valley.
" retroflexus, L.	—		
" albus, L.	—		A weed at Carleton, on the [Saskatchewan.
Montelia tamariscina, Gray.	—		
POLYGONACEÆ.			
Polygonum Pennsylvanicum, L.	—		North-West coast of America?
" incarnatum, Ell.	—		

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Polygonum Persicaria, L.	—	—	Saskatchewan valley.
" Hydropiper, L.	—		Saskatchewan valley (indig.)
" hydropiperoides, Michx.	—		
" amphibium, L., var. aquaticum.	—	—	Great Slave Lake, lat. 60° N.
" amphibium, L., var. terrestre.	—		North-West America.
" aviculare, L.	—		North-West coast to lat. 65° N.
" ramosissimum, Michx.	—	—	
" sagittatum, L.	—	—	Saskatchewan valley.
" cilinode, Michx.	—	—	Saskatchewan valley.
" convolvulus, L.	—		Hudson's Bay to Peace River [valley, lat. 56° N.
" dumetorum, L.	—	—	
Fagopyrum esculentum, Moench.	—		
Rumex Patientia, L. (Colpoy's Bay).	—		
" orbiculatus, Gray.	—	—	Rocky Mts. and Arctic Sea c.
" Salicifolius, Wein. (Colpoy's Bay).	—	—	Great Bear Lake, McKenzie R.
" verticillatus, L.	—		
" crispus, L.	—		
" obtusifolius, L.	—	—	
" acetosella, L.	—	—	North-West Pacific coast.
LAURACEÆ.			
Sassafras officinale, Nees.			
Lindera Benzoin, Meisner.	—		
THYMELEACEÆ.			
Dirca palustris, L.	—		
ELEAGNACEÆ.			
Shepherdia Canadensis, Nutt.	—	—	Fort Franklin, on the McKenzie [and Rocky Mountains.
SANTALACEÆ.			
Comandra umbellata, Nutt.	—		Rocky Mountains, lat. 56° N.
SAURURACEÆ.			
Saururus cernuus, L.			
CERATOPHYLLACEÆ.			
Ceratophyllum demersum, L.	—	—	
CALLITRICACEÆ.			
Callitriche verna, L.	—	—	Rocky Mountains, lat. 56° N.
EUPHORBIACEÆ.			
Euphorbia polygonifolia, L. (R. aux Sables).	—	—	North-West Pacific coast.
" glyptosperma, Engelm.	—		
" maculata, L.	—		
" corollata, L.			
" platyphylla, L.			
" Helioscopia, L.	—		
Acalypha Virginica, L.	—	—	Saskatchewan valley.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
URTICACEÆ.			
Ulmus fulva, Michx.	—	—	
" Americana, L.	—	—	York Factory, Hudson's Bay.
" racemosa, Thomas.	—		
Urtica gracilis, Ait.	—	—	Fort Franklin, on the McKenzie [and Rocky Mountains.
Laportea Canadensis, Eaud.	—		
Pilea pumila, Gray.	—		
Boehmeria cylindrica, Willd.	—		
Cannabis Sativa, L.	—		
PLATANACEÆ.			
Platanus occidentalis, L.			
JUGLANDACEÆ.			
Juglans cinerea, L.	—		
" nigra, L.			
Carya alba, Nutt.	—		
" amara, Nutt.	—		
CUPULIFERÆ.			
Quercus alba, L.	—		Lake Winipeg.
" macrocarpa, Michx.	—		
" bicolor, Willd.	—		
" ilicifolia, Wang.			
" coccinea, Wang., var. tinctoria.	—		
" rubra, L.	—	—	Saskatcheman valley.
Castanea vesca, L., var. Americana.			
Fagus ferruginea, Ait.	—		
Corylus Americana, Walt.	—		North-West coast.
" rostrata, Ait.	—	—	Saskatchewan valley.
Carpinus Americana, Michx.	—		
Ostrya Virginica, Willd.	—		Lake Winipeg.
MYRICACEÆ.			
Myrica Gale, L.	—	—	McKenzie River valley.
BETULACEÆ.			
Betula papyracea, Ait.	—	—	Pacific coast, lat. 56° N.
" excelsa, Ait.	—	—	
" lenta, L.	—		
" pumila, L.	—		Peace River valley, lat. 56° N.
Alnus incana, Willd.	—	—	Ft. Franklin, on McKenzie Riv.
SALICACEÆ.			
Salix candida, Willd.	—	—	Ft. Norman, on the McKenzie.
" humilis, Marshall.	—		
" discolor, Muhl.	—	—	Saskatchewan valley.
" petiolaris, Smith.	—		Lake Winipeg.
" cordata, Muhl.	—	—	Great Slave Lake.
" livida, var. occidentalis.	—	—	Rocky Mountains, lat 53° N.
" lucida, Muhl.	—	—	Rocky Mountains, lat. 52° N.
" nigra, Marshall.	—	—	

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Salix longifolia, Muhl.	—	—	West to the Pacific coast.
Populus tremuloides, Michx.	—	—	Rocky Mountains to lat. 64° N.
" grandidentata, Michx.	—		
" monilifera, Ait.	—		
" balsamifera, L.	—	—	Pacific coast, lat. 68° N.
CONIFERÆ.			
Pinus strobus, L.	—	—	West of the Rocky Mountains.
" resinosa, Ait.	—	—	West of the Rocky Mountains.
Abies nigra, Poir.	—	—	North to lat. 65° N.
" alba, Mx.	—	—	Almost to the Arctic Sea.
" Canadensis, Mx.	—	—	Pacific coast, lat. 57° N.
" balsamea, Marshall.	—	—	Little Slave Lake.
Larix Americana, Mx.	—	—	Peace River valley, lat. 57° N.
Thuja occidentalis, L.	—	—	Saskatchewan valley.
Juniperus communis, L.	—	—	Pacific coast.
" sabina, L., var. procumbens, Ph.		—	Rocky Mountains.
Taxus baccata, L., var. Canadensis, Gr.	—	—	Saskatchewan valley.
ARACEÆ.			
Arisæma triphyllum, Torr.	—		
Calla palustris, L.	—	—	Hudson's Bay and Saskatche-
Symplocarpus fœtidus.	—	—	[wan valley.
Orontium aquaticum.			
Acorus calamus.	—		Saskatchewan valley.
TYPHACEÆ.			
Typha latifolia, L.			
Sparganeum simplex, Hudson, var. angustifolium.	—	—	Great Bear Lake.
Sparganeum eurycarpum, Engelm.	—		
LEMNACEÆ.			
Lemna minor, L.	—		Lat. 58° N., on McKenzie River.
" trisulca, L.	—		Lat. 58° N., on McKenzie River.
" polyrrhiza, L.	—		Lat. 58° N., on McKenzie River.
NAIADACEÆ.			
Nais flexilis, Rostk.	—	—	
Potamogeton natans, L.	—	—	North-West coast.
" Claytonii, Tuck.	—		
" amplifolius, Tuck.	—		
" gramineus, L.	—		
" prælongus, Wulf.	—	—	Lake Athabaska.
" perfoliatus, L.	—	—	Great Slave Lake.
" compressus, L.	—	—	Lake Athabaska.
" pauciflorus, Pursh.	—	—	
" pusillus, L.	—		Lake Athabaska.
" pectinatus, L.	—	—	North-West coast.
" heterophyllus, Schreber.	—	—	Saskatchewan valley,

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
ALISMACEÆ.			
Triglochin palustre, L.	—	—	Peace River valley, lat. 56° N.
" maritimum, L., var. elatum.	—	—	North-West coast.
Scheuchzeria palustris, L.	—		Rocky Mountains, lat. 55° N.
Alisma Plantago, L., var. Americana, Gray.	—	—	Peace River valley, lat. 56° N.
Sagittaria variabilis, Engelm.	—	—	Pacific coast.
" calycina, Eng. (Dr. J. Bell).			
HYDROCHARIDACEÆ.			
Anacharis Canadensis, Plan.	—	—	Saskatchewan valley.
ORCHIDACEÆ.			
Orchis spectabilis, L.			
Habenaria virescens, Spreng.	—	—	
" viridis, var. bracteata, Reich.			Rocky Mountains, lat. 55° N.
" hyperborea, R. Br.	—	—	Ft. Franklin, on the McKenzie.
" dilatata, Gray.	—	—	North-West coast.
" obtusata, Rich.	—	—	Bear Lake and N. W. coast.
" orbiculata, Torrey.	—	—	Saskatchewan valley.
" psychodes, Gray.	—	—	
" tridentata, Hooker.	—	—	
" Hookeri, Torrey.	—		
Goodyera repens, R. Br.	—	—	Rocky Mts. and Fort Franklin, [on the McKenzie.
" Menziesii, Lind.	—		
Spiranthes Romanzoviana, Chap.			
" gracilis, Bigel.	—		Ft. Franklin, on the McKenzie.
Listera cordata, R. Br.	—	—	N. W. coast, Sitka, Unalaska.
" convallarioides, Hook.		—	N. W. coast to Unalaska.
Pogonia ophioglossoides, Nutt.	—		
Calopogon pulchellus, R. Br.	—		
Calypso borealis, Salisb.	—	—	Bear Lake and Pacific coast.
Lipularia discolor, Nutt.			
Corallorhiza innata, R. Br.	—	—	Saskatchewan valley.
" multiflora, Nutt.	—	—	Pacific coast.
" Macræi, Gray.	—	—	
Cypripedium pubescens, Willd.	—		Saskatchewan valley.
" parviflorum, Salisb.	—		Rocky Mountains.
" spectabile, Swartz.	—		
" acaule, Ait.	—	—	Ft. Franklin, on McKenzie Riv.
" arietinum, R. Br. (J. M. Buchan).	—		Saskatchewan valley.
AMARYLLIDACEÆ.			
Hypoxys erecta, L.	—		
IRIDACEÆ.			
Iris versicolor, L.	—	—	
" lacustris, Nutt.			
Sisyrinchium Bermudiana, L.	—	—	Sitka and N. W. America.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
SMILACEÆ.			
Smilax hispida, Muhl.	—	—	
" herbacea, L.	—	—	Lake Winipeg.
LILIACEÆ.			
Trillium grandiflorum, Salisb.	—		North-West coast.
" erectum, L.	—	—	
" erectum, L., var. album, Pursh.	—		
" erythrocarpum, Michx.	—		
Medeola Virginica, L.	—		
Zygadenus glaucus, Nutt.	—		Great Bear Lake & Rocky Mts.
Tofieldia glutinosa, Willd.		—	Bear Lake to Sitka Sound.
Uvularia grandiflora, Smith.	—		Saskatchewan valley.
Streptopus roseus, Michx.	—	—	North-West coast.
Clintonia borealis, Raf.	—	—	Saskatchewan valley.
Smilacina racemosa, Desf.	—	—	North-West America.
" stellata, Desf.	—	—	North-West coast.
" trifolia, Desf.	—	—	Bear Lake and Rocky Mts.
" bifolia, Ker.	—	—	North-West coast.
Polygonatum biflorum, Ell.	—	—	Saskatchewan valley.
Lilium Philadelphicum, L.	—	—	Rocky Mountains.
" Canadense, L.	—		North-West coast.
Erythronium Americanum, Smith.	—		
Allium tricoccum, Ait.	—		
" Schœnoprasum, L.		—	North-West coast.
JUNCACEÆ.			
Luzula pilosa, Willd.	—	—	Saskatchewan valley.
Juncus alpinus, Vill., var. insignis, Fries.	—	—	Great Slave Lake.
" articulatus, L.	—	—	
" Balticus, Willd.	—	—	North-West coast.
" bufonius, L.	—		North-West coast.
" Canadensis, J. Gay, var. coarctatus, Eng.	—	—	Bear Lake.
" effusus, L.	—	—	North-West coast.
" filiformis, L.	—	—	Bear Lake.
" nodosus, L.	—	—	Bear Lake.
" tenuis, Willd.	—		Rocky Mts. and Bear Lake.
" Stygius, L. (R. Bell, La Cloche Island).			
PONTEDERIACEÆ.			
Pontederia cordata, L.	—	—	Saskatchewan valley.
ERIOCAULONACEÆ.			
Eriocaulon septangulare, Wish.	—		Saskatchewan valley.
EQUISETACEÆ.			
Equisetum arvense, L.	—	—	Rocky Mountains.
" pratense, Ehr.	—	—	Rocky Mountains.
" sylvaticum, L.	—	—	Ft. Franklin, on the McKenzie.

	Eastern Ontario.	Lake Sup'rior	Western and North-western Extension.
Equisetum limosum, L.	—	—	Saskatchewan valley.
" palustre, L.	—		Arctic Sea coast.
" hyemale, L.	—	—	Western coast.
" variegatum, Schleich.	—	—	Saskatchewan val. to Arctic Is.
" scirpoides, Michx.	—		Peace River valley, lat. 56° N.
FILICES.			
Polypodium vulgare, L.	—	—	Vancouver Isl. and N. W. coast.
Pellæa gracilis, Hook.	—	—	Saskatchewan valley.
" atropurpurea, Link.			Rocky Mts. and Bear Lake.
Pteris aquilina, L.	—	—	North-West coast.
Adiantum pedatum, L.	—	—	North-West coast.
Scolopendrium vulgare, Smith.			
Camptosorus rhizophyllus, Link.	—		Saskatchewan valley.
Asplenium trichomanes, L.	—	—	North-West coast.
" viride, Hudson.			Rocky Mountains.
" angustifolium, Mx.	—		
" thelypteroides, Mx.	—	—	
" Filix-femina, Bruh.	—	—	Sitka and N. W. coast.
Phegopteris Dryopteris, Fée.	—	—	Bear Lake and Rocky Mts.
Aspidium lonchitis, Schw.			Rocky Mountains.
" acrostichoides, Schw.	—	—	
" Thelypteris, Schw.	—		
" Noveboracense, Schw.	—		
" spinulosum, Schw., var. intermedium, Willd.	—	—	Rocky Mountains.
" spinulosum, Schw., var. Bootii, Gray.	—		
" cristatum, Schw.	—	—	Saskatchewan valley.
" cristatum, Schw., var. Clintonianum, Eat.	—		
" Goldianum, Hooker.	—		
" Filix-mas, Schw.		—	
" marginale, Swartz.	—	—	Saskatchewan valley.
Struthiopteris Germanica, Willd.	—	—	Saskatchewan valley.
Onoclea sensibilis, L.	—	—	Saskatchewan valley.
Cystopteris fragilis, Bernh.	—	—	Rocky Mountains.
" bulbifera, Bernh.	—		
Osmunda regalis, L.	—	—	Saskatchewan valley.
" Claytoniana, L.	—	—	
" cinnamomea, L.	—		
Botrychium ternatum, Swartz, var. lunarioides, Milde.	—	—	Peace River valley, lat. 56° N.
Botrychium Virginicum, Swartz.	—	—	North-West coast.
LYCOPODIACEÆ.			
Lycopodium lucidulum, Michx.	—	—	Peace River valley, lat. 56° N.
" annotinum, L.	—	—	Slave Lake.
" dendroideum, Mx.	—	—	Saskatchewan valley.
" clavatum, L.	—	—	North-West coast.
" complanatum, L.	—	—	Peace River valley, lat. 56° N.
Selaginella selaginoides, Link.		—	Saskatchewan valley.
" rupestris, Spring.	—	—	North-West coast.
" apus, Spring.	—		

In the following list no distribution has been attempted, inasmuch as we are yet in comparative ignorance regarding their range through British North America:

CYPERACEÆ.

Cyperus diandus, Torr.
Dulichium spathaceum, Rich.
Eleocharis obtusa.
" palustris, R. Br.
" acicularis, Torr. and Gr.
Scirpus pauciflorus, Light.
" cæspitosus, L.
" pungens, Vahl.
" riparius, Presl.
" sylvaticus, L.
" atrovirens, Muhl.
" Eriophorum, Michx.
Eriophorum alpinum, L.
" polystachyon, L.
" Virginicum, L.
" gracile, Koch.
Rhynchospora alba, Vahl.
" capillacea, Torr.
Cladium mariscoides, Torr.
Scleria verticillata, Muhl.
Carex gynocrates, Wormsk.
" monosperma, Macoun.
" scirpoidea, Michx.
" polytrichoides, Muhl.
" siccata, Dewey.
" teretiuscula, Good.
" vulpinoidea, Michx.
" stipata, Muhl.
" rosea, Schk.
" tenella, Schk.
" trisperma, Dewey.
" canescens, L.
" Deweyana, Schw.
" stellulata, Good.
" sychnocephala, Carey.
" scoparia, Schk.
" straminea, Schk.
" stricta, Lam.
" aquatilis, Wahl.
" lenticularis, Michx.
" limosa, L.
" irrigua, Smith.
" Buxbaumii, Willd.
" aurea, Nutt.
" livida, Willd.
" tetanica, Schk.
" Crawei, Dewey.
" granularis, Dewey.
" gracillima, Schw.
" plantaginea, Lam.
" platyphylla, Cary.

CYPERACEÆ—*Continued.*

Carex laxiflora, Lam.
" eburnea, Booth.
" vaginata, Tausch.
" pedunculata, Muhl.
" Pennsylvanica, Lam.
" varia, Muhl.
" scabrata, Schw.
" arctata, Boott.
" flexilis, Rudge.
" flava, L.
" Œderi, Ehrh.
" filiformis, L.
" lanuginosa, Michx.
" riparia, Curtis.
" Pseudo-Cyperus, L.
" hystricina, Willd,
" intumescens, Rudge.
" lupulina, Muhl.
" retrosa, Schw.
" utriculata, Boott.
" Tuckermani, Boott.

GRAMINEÆ.

Leersia oryzoides, Swartz.
Zizania aquatica, L.
Alopecurus aristulatus, Mx.
Phleum pratense, L.
Vilfa vaginæflora, Torr.
Sporobolus heterolepis, Gray.
" cryptandrus, Gray.
Agrostis scabra, Willd.
" vulgaris, Willd.
" alba, L.
Cinna arundinacea, L.
Muhlenbergia glomerata, Trin.
" Mexicana, Trin.
Brachyelytrum aristatum, Beauv.
Calamagrostis Canadensis, Beauv.
" stricta, Trin.
" arenaria, Roth.
Oryzopsis asperifolia, Michx.
Spartina cynosuroides, Willd.
Graphephorum melicoides, Beauv.
Eatonia obtusata, Gray.
" Pennsylvanica, Gray.
Glyceria nervata, Trin.
" pallida, Trin.
" aquatica, Smith.
" fluitans, R. Brown.
Poa annua, L.

GRAMINEÆ—*Continued.*

Poa serotina, Ehrh.
" cæsia, Smith.
" pratensis, L.
" compressa, L.
Festuca ovina, L. var.
" nutans, Willd.
Bromus secalinus, L.
" ciliatus, L.
Phragmites communis, Trin.
Triticum repens, L.
Elymus Virginicus, L.
" Canadensis, L.
Gymnostichum Hystrix, Schreb.
Aira flexuosa, L.
" cæspitosa, L.
Danthonia spicata, Beauv.
Avena striata, Michx.
Phalaris arundinacea, L.
Milium effusum, L.
Panicum glabrum, Gand.
" capillare, L.
" virgatum, L.
" latifolium, L.
" xanthophysum, Gray.
" dichotomum, L.
" depauperatum, Muhl.
" Crus-Galli, L.
Setaria verticillata, Beauv.
" glauca, Beauv.
" viridis, Beauv.
Andropogon furcatus, Muhl.
" scoparius, Michx.
Sorghum nutans, Gray.

MUSCI.

Sphagnum cymbifolium, Dill.
" acutifolium, Ehrh.
Gymnostomum curvirostrum, Hed.
" calcareum, Nees.
" rupestre, Schw.
Seligera recurvata, Br. and Sch.
" pusilla, Br. and Schimp.
Anodus Dormianus, Br. and Schimp.
Trematodon ambigua, James.
Dicranum viridis, Sulliv.
" virens, Hedw.
" varium, Hedw.
" heteromallum, Hedw.
" Schreberi, Hedw.
" montanum, Hedw.
" flagillare, Hedw.
" fulvum, Hook.
" congestum, Hedw.
" scoparium, L.
" Schraderi, Web and Mohr.
" undulatum, Torr.
" Drummondii, Mull.

MUSCI—*Continued.*

Ceratodon purpureus, Brid.
Leucobryum glaucum, Hampe.
Fissidens minutulus, Sulliv.
" incurvis, Sulliv.
" osmundioides, Hedw.
" adiantoides, Hedw.
" grandifrons, Brid.
" taxifolius, Brid.
Trichostimum rigidulum, Smith.
" pallidum, Hedw.
" glaucescens, Hedw.
" tophaceum, Brid.
Barbula ungurculata, Hedw.
" convoluta, Hedw.
" fallax, Hedw.
" tortuosa, Web and Mohr.
" ruralis, Hedw.
Didymodon rubellus, Br. and Sch.
" luridus, Hornich.
" cylindricus, Bruch.
Distichium capillaceum, Bruch.
Tetraphis pellucida, Hedw.
Encalypta ciliata, Hedw.
" streptocarpa, Hedw.
Drummondia clavatella, Hook.
Orthotrichum anomalum, Hedw.
" strangulatum, Bruch.
" Ohioense, Sulliv.
" speciosum, Nees.
" leiocarpum, Br.
" Ludwigii, Schw.
" Hutchinsæa, Smith.
" crispum, Hedw.
" crispulum, Hornsch.
" Bruchii, Brid.
" Americanum, Mit.
Schistidium apocarpum, Br.
Hedwigia ciliata, Ehrh.
Diphyscium foliosum, Web.
Atrichum angustatum, Br.
" undulatum, Beauv.
Polytrichum commune, L.
" formosum, Hedw.
" gracile, Menzies.
" juniperinum, Hedw.
Timmia megapolitina, Hech.
Aulacomnion heterostichum, Br.
Aulicomnion palustre, Schw.
Bryum pyriforme, Hedw.
" amiotinum, Hedw.
" albicans, Whl.
" nutans, Schreb.
" roseum, Schreb.
" argenteum, L.
" Pseudo-triquetrum, Hedw.
" Duvallii, Voit.
" bimum, Schreb.

MUSCI—*Continued.*

Bryum intermedium, Brid.
" capillare, Hedw.
" cæspiticium, L.
" pallescens, Schw.
" Blindii.
Mnium affine, Bland.
" orthorhynchum, Brid.
" stellare, Hedw.
" lycopodioides, Hook.
" punctatum, Hedw.
" serratum, Brid.
" spinulosum, Bry. Enop.
" Drummondii, Br. and Sch.
" cuspidatum, Hedw.
" rostratum, Schw.
Bartramia Olderi, Swartz.
" pomiformis, Hedw.
" fontana, Brid.
" Marchica, Brid.
" calcarea, Br. and Sch.
Meesia uliginosa, Hedw.
Cotoscopium nigritium, Brid.
Funaria hygrometrica, Hedw.
Fontinalis antypyretica, L.
Leucodon julaceus, Sulli.
Leptodon trichomitriom. Mohr.
Anomodon viticulosus, Host.
" apiculatus, Br. and Sch.
" obtusifolius, Br. and Sch.
" attenuatus, Hedw.
Leskea nervosa, Schw.
" rostrata, Hedw.
" Woolei, Austin.
Thelia hirtella, Sulliv.
Mymella Careyana, Sulliv.
" julacea, Bry. Enop.
Pylaisæa intricata, Br. Enop.
" polyantha, Br. Europ.
Platygynium repens, Br. Europ.
Cylindrothecium cladorrhizans, Hedw.
Neckera pennata, Hedw.
Omallia trichomanoides, Brid.
Climacium Americanum, Brid.
" dendroides, Dill.
Hypnum tamariscinum, Hedw.
" deticatulum, L.
" minututum, Hedw.
" scitum, Beauv.
" gracile, Br. and Sch.
" abietinum, L.
" Blandovii, Web.
" trigenteum, L.
" splendens, Hedw.
" brevirostre, Ehrh.
" Oakesii, Sulliv.
" Alleghaniense, C. Mull.
" strigosum, Hoffm.

MUSCI—*Continued.*

Hypnum deplanatum, Schimp.
" rusciforme, Weis.
" Sullivantii, R. Spruce.
" recurvans, Schw.
" Schraderi, Willd.
" cordifolium, Hedw.
" giganteum, Schimp.
" scorpioides, L.
" Cononi, Br. and Schimp.
" trifarium, Weis.
" uncinatum, Hedw.
" fidicinum, L.
" Crista-Castriense, L.
" imponens, Hedw.
" reptile, Michx.
" curvifolium, Hedw.
" Haldanianum, Grev.
" fertile, Lendtn.
" nitens, Schreb.
" salebrosum, Hoffm.
" lætum, Brid.
" acuminatum, Beauv.
" rutabulum, L.
" velutinum, L.
" rivulare, L.
" pratense, Hook.
" hispidulum, Brid.
" polymorphum, Bry. Em.
" Somerfeltii, Mypin.
" chrysophyllum, Brid.
" minutissimum, Sulliv.
" subtile, Hoffm.
" plumosum, L.
" populeum, Hedw.
" aduncum, Hedw.
" reflexum, Starke.
" adnatum, Sulliv.
" noterophyllum, Sulliv.
" serpens, Hedw.
" confervoides, Schw.
" radicale, Brid.
" orthocladon, Beauv.
" riparium, Hedw.
" denticulatum, L.
" pulchellum, Dick.
" turfaceum, Lindb.
" compactum, C. Mull.
" palustre, L.
" nitidulum, L.
" sylvaticum, L.

HEPATICÆ.

Marchantia polymorpha, L.
Preissia commutata, Nees.
Fegatella conica, Corda.
Aneura latifrons, Lind.
Steetzia Blyttii, Moanch.

HEPATICÆ—*Continued.*

Geocalyx graveolens, Nees.
Lophocolea heterophylla, Nees.
" crocata, Nees.
Jungermannia trichophylla, L.
" connivens, Dick.
" curvifolia, Dick.
" Schraderi, Martin.
Scapania Peckii, Austin.
" nemorosa, Nees.
Sphanæcetis Hubnaria, Raben.
Plagiochela porelloides, Lind.
Frullania Grayana, Montag.
" Virginica, Gott.

HEPATICÆ—*Continued.*

Frullania Eboracensis, Lehm.
Jejeunia serphyllifolia, Libert.
Madotheca platyphylla, Dumut.
" porella, Nees.
Radula complanata, Du.
Ptilidium ciliare, Nees.
Trichocolea Tormentilla, Nees.
Mastigobryum trilobatum, Nees.
Lepidoza reptans, Nees.
Calypogia Trichomanes, Cerda.
Jungermannia cordifolia, Hook.
Riccia Sorocarpa, Bisch.
Chylocyphus ascendens, Sulliv.

CANADIAN LOCAL HISTORY.

THE FIRST GAZETTEER OF UPPER CANADA.

WITH ANNOTATIONS,

BY THE REV. HENRY SCADDING, D.D.

(*Continued from page 541.*)

S.

Sables Dorés, Portage aux, in the Ottawa River, a little above Grand Calumet and Portage du Montaigne.

Sables, Riviere aux, runs into the south of Lake Huron, south of the highlands, and easterly to where the waters of that lake descend into River St. Clair.

Saganaskokam River: see Moira River. [(?) Englishman's River.]

Saggathewigewam: now called the River Trent. [Outlet marked by a hut.]

Salmon Creek, rises near the salt springs of the River Trent, and running northerly, discharges itself into that river among several small islands.

Salmon Creek, Great, empties itself into the River Trent at its first great bend to the westward, a little below the second Rapids, near a few small islands.

Salmon Creek, Big, runs into Lake Ontario, between the townships of Cramahé and Haldimand.

Salmon Creek, Little, runs into Lake Ontario, near the centre of the township of Cramahé.

Saltfleet Township, in the county of Lincoln, lies west of Grimsby, and fronts Lake Ontario. [From a market-town and parish in Lincolnshire.]

Sandusky Island, in Lake Erie, lies a little south-east of the Bass Islands, and near to Sandusky Bay. [The same as Cunningham's Island.]

Sandwich Township is situated upon the upper part of the Detroit River, and comprehends the old French settlements; it has a thriving town of the same name, a little below the fort of Detroit, on the

east side of the river, where a gaol and court-house have been erected. [From Sandwich on the Stour, in Kent, the principal of the Cinque Ports.]

Sandy Bay, Little, on Lake Ontario, between Sophiasburgh and Marysburgh, is supplied by the East Lake, lying also between these townships, in the County of Prince Edward.

Sandy Bay, Great: see Sandy Bay.

Sandy Bay, on Lake Ontario, in the township of Ameliasburgh, lies immediately east of, and close to, the Isle de Quinté.

Sandy Point, at the easterly extremity of Isle Tonti, opposite to the mouth of Tonegayon Bay.

Sandy River, runs into the head of Little Sandy Bay, Lake Ontario.

Sangas, or St. Dusk's Creek, a small stream emptying itself into Lake Erie, east of Sangas Point: it affords a harbour for boats, having about three feet of water on its bar. [Possibly the humour of some voyageur transformed Sangas into St. Dusk. In like mood, certain American revolutionists made a saint of Tammany, a defunct Delaware chief.]

Sangas Point, or St. Dusk's Point, on the north shore of Lake Erie, east of the River Waveney: this is the most projecting point between the mouth of the Ouse and the North Foreland. [Sangas may be connected with Sangwewessin=It rings (like metal when struck.)]

Saumon River, on the north shore of Lake Ontario, lies between Pigeon Bay and Petits Ecors. [Not the Highland creek: it must be farther to the east.]

Saût, Long, third township, River St. Lawrence, is the greatest rapid on this river. The current runs with great velocity; very few accidents, however, have happened in passing this rift, there being no sudden fall in it, except at the foot of the Saût.

Savatte, Isle à la, a very small island in the River St. Lawrence, a little below Isle de Chenal Écarté. [Savatte = old shoe.]

Scarborough Township, so noted for its high banks, is in the east riding of the County of York, and lies to the west of the township of Pickering, fronting Lake Ontario. [From the name of a seaport and borough in Yorkshire.]

Serpent Le, is on the north shore of Lake Huron, and lies east of Mississaga River, and to the westward of Isle la Cloche. [This is a river marked on Bouchette's maps.]

Severn River, conveys the waters of Lake Simcoe from the northern extremity of that lake into the head of Gloucester Bay and Harbour, Lake Huron. [The northern extremity of Lake Simcoe is now known as Lake Couchiching: said to denote "where a river descends from a lake." The Ochipway name for the Severn is Wanantgitcheang=The round-about river.]

Shanguanac, on the north shore of Lake Superior, east of Black Bay. [In Bayfield's chart, Greater and Lesser Shaganash Fishery. Shaganash=Englishman. The word has reference to "the appearance of a sail upon the horizon."]

Shannon River, empties itself into the Bay of Quinté, ten or twelve miles above the Mohawk settlement.

Shawnese Township, lies at the mouth of the River Cheval Écarté, on the east side of the River St. Clair. [This name has disappeared. West Dover seems to have taken its place.]

Ship Island, is of very small extent, and is situated between the Bass Islands and Cunningham Island, in Lake Erie.

Short Point, on Lake Erie, township of Wainfleet, county of Lincoln: this is the first point east of the Six Nations' land, Grand River.

Shyon Cape, in Michipicoten Bay, Lake Superior, between Gorgontua Point and the mouth of the River Michipicoten. [In Bayfield's chart marked Cheyye.]

Sidney Township, in the County of Hastings, is situated at the head of the Bay of Quinté, immediately above Thurlow. [Probably from the first Viscount Sydney, Thomas Townshend.]

Simcoe Lake, formerly Lake aux Claies, Ouentironk, or Sheniong, is situated between York and Gloucester, upon Lake Huron. It has a few small islands and several good harbours: a vessel is now building for the purpose of facilitating the communication to Lake Huron by that route. [Also called Lake Toronto. Ouentironk is probably identical with Toronto, which, written more fully, was Atoronton and Otoronton, denoting a place where there are many inhabitants, a rendez-vous of numerous bands, *i.e.*, of Wyandots or Hurons. See Sagard and Parkman. This lake was long the centre of a populous region. Appended to this article in the Gazetteer is the following note:—So named by Lieutenant-General Simcoe, in respect to his father, the late Captain Simcoe, of the Royal Navy, who died in the River St. Lawrence, on the expedition to Quebec, in 1759. In the

year 1755, this able officer had furnished Government with the plan of operations against Quebec, which then took place: at the time of his death, Captain Cook, the celebrated circumnavigator, was master of his ship, the Pembroke.]

Sinclair River [or *St. Clair*, 2nd edition], runs from north to south, being the strait between Lake Huron and Lake St. Clair. [The correct form of the name is *Sainte Claire*, as given to the lake by La Salle, in 1679.]

Sinion, or Sheniong Lake, now Lake Simcoe: which see. [Sheniong possibly = Silver or silvery.]

Sister, East, The, a small island in Lake Erie, the easternmost of the three islands called the Sisters, and to the north of the Bass Islands.

Sister, West, a small island at the west end of Lake Erie, being the westernmost of the islands called the Sisters, and westerly of the Bass Islands.

Schlosser Fort, or Little Niagara. [From the name of a French officer of Engineers.]

Smith's Creek, runs into Lake Ontario, in the east part of the township of Hope. [The river at Port Hope: called elsewhere in the Gazetteer, Ganaraska.]

Sophiasburgh Township, in the County of Prince Edward, lies to the northward of Hallowell, and in the Bay of Quinté. [A compliment to the Princess Sophia.]

Sorcerer's Lake, or Lake Nipissing: *q. v.* [In Carver's map of the Province of Quebec in 1763, the Lake bears both of these names.]

Southwold Township, in the County of Suffolk, lies west of Yarmouth, having Lake Erie for its southern boundary. [From the name of a seaport in Suffolk.]

Sugar-loaf Hill, a small natural landmark, on the north shore of Lake Erie, between Point Abino and the Grand River, on the boundary between the townships of Humberstone and Wainfleet.

Sutherland's Creek, runs into Lake St. Francis, between Pointe au Bodet and Pointe Mouillée in the township of Lancaster.

T

Talbot's River, empties itself into Lake Simcoe, and on the east side thereof. [From Col. Talbot. The native name was Nummaibene-sippi, Sucker River.]

Talons, Portage de, on the south-west branch of the Ottawa River, immediately above Rapides des Porches. [From De Talon, Intendant under De Tracy.]

Tegaogen, on the uorth shore of Lake Ontario, lies about half-way between York and the head of the Bay of Quinté. [At Port Hope. It is a Mohawk word denoting a carrying-place.]

Thames River, formerly La Tranche or Trenche, and by the Indians, Esse-cunny-seepe, rises in the Chippewa country, and, running south-westerly, washes the Counties of (the west riding of) York, Norfolk, Suffolk, and Kent, and disembogues itself into Lake St. Clair, above Detroit: it is a river of considerable extent, without falls. From its upper branches it communicates by small Portages with Lake Huron and the Grand River. The site of Oxford is on its upper Fork, and that intended for Dorchester on its middle fork; London on the main fork, and Chatham on the lower fork. It is a fine inland canal, and capable of being highly improved. The lands on its banks are extremely fertile. [The native name, given above, means Horn River.]

Thessalon Point, in Muddy Lake, is the angle made by that lake and a channel leading to French River, Matchedash, &c., and lies parallel to Caribou Island.

Thessalon River, runs into Lake Huron, a little to the eastward of Muddy Lake, on the north shore.

Thompson's Island, lies near the entrance of the River St. Clair: it scarcely contains 200 acres of dry land fit for tillage, but a great many acres of marsh.

Thorold Township, in the County of Lincoln, lies south of Grantham, and is watered by the River Welland. [Probably from Sir John Thorold, M.P. for Lincolnshire in 1793.]

Thunder Bay, on the north shore of Lake Superior, opposite to the east end of Isle de Minatte. There is a remarkable high mountain at its easternmost cape.

Thunder Bay, in Lake Huron, lies to the eastward of Cabot's Head, and westward of Gloucester Bay.

Thurlow Township, in the County of Hastings, lies near the head of the Bay of Quinté, and eastward of Sidney. [A compliment to Edward Thurlow, Lord High Chancellor of England, created Baron Thurlow in 1792.]

Tilbury Township, in the western district, is situated upon Lake St. Clair, west of Raleigh, where the Thames disembogues itself into that lake. [From Tilbury Fort on the Thames.]

Tobacoke: see River aux Attokas. [The Etobicoke or Alder Creek.]

Tonagayon Bay, on Lake Ontario, opposite to the east end of Amherst Island, lies between Kingston and Ernestown. [In the Seneca dialect = Full of hickory bark.]

Tonianta Creek, runs into the River St. Lawrence, in the township of Yonge. [Tonawanda in the Seneca dialect is Swift Water.]

Tonti Isle, now called Amherst Island, by proclamation, the 16th July, 1792. [From the Italian form of Henri de Tonty's name, La Salle's companion and lieutenant. He had lost a hand, which was replaced by one of iron, over which he wore a glove. Troublesome Indians and others stood in awe of this mysterious hand.]

Tonti, Petite Isle, opposite the mouth of Tonagayon Bay, and off Sandy Point, the eastern extremity of Amherst Island.

Tonti Rivev, runs into Lake Erie, west of Landguard.

Toronto, now called York, *q. v.* [The site of Toronto derives its name from a fort or trading-post usually known as Fort Toronto, but the official name of which was Fort Rouillé, so called from Antoine Louis Rouillé, French Colonial Minister in 1749. The fort or trading-house marked the point of debarcation for the overland march to the Toronto region, *i.e.*, the populous Huron country round Lake Toronto, the modern Lake Simcoe. The starting-place ultimately usurped the name of the goal.]

Toronto Bay, now called York Harbour.

Toronto Lake (or Toronto), Lake le Clie, was formerly so called by some: others called the chain of lakes, from the vicinity of Matchedash towards the head of the Bay of Quinté, the Toronto lakes, and the communication from the one to the other was called the Toronto River. [In the general map accompanying the North American and West Indian Gazetteer, 1778, this chain of lakes is named Toronto River.]

Toronto River, called by some St. John's River, now called the Humber.

Tortue, Portage de la, at the head of the south-west branch of the Ottawa River, near to the small lake which joins the portage leading to Lake Nipissing. [Tortue = Tortoise.]

Tourtes, Isle aux, in Lake Ontario, lies off the south-west point of Wolfe Island. [Tourtes = Wild pigeons.]

Tourtes, Point aux, on the north shore of Lake Superior, is the east point of a bay of the same name.

Tower Point, the easterly point that makes Duck Cove, in Marysburgh, and west of Point Traverse, in Lake Ontario.

Townsend, the Township of, including what is called its Gore, in the County of Norfolk, lies in the rear and to the north of Woodhouse. [From the Marquis of Townshend, a distinguished military officer, who, after the death of General Wolfe, became Commander-in-Chief. To him, as such, Quebec was surrendered.]

Trafalgar Township, is in the west riding of the County of York, on the Lake Ontario; and lies between the townships of Toronto and Nelson. Second Edition.

Traverse Bay, on Lake Ontario, is made by Cape Traverse and Point Traverse, both in Marysburgh. [La Traverse denoted a place in the route where the voyageurs took the opposite side of the stream, or struck directly across from one promontary to another, without coasting.]

Traverse Cape, in Marysburgh, on Lake Ontario, is the main point to the northward of Orphan Island, and south of Point Pleasant.

Traverse Isle, now called Prince William's Island, Lake Huron.

Traverse Pointe, is the south-east point of Marysburgh, in Lake Ontario, near to the Duck Islands: this point forms nearly a peninsula.

Traverse, Pointe à la, on the north shore of the River St. Lawrence, parallel with Isle Morpion, and about three miles above Pointe du Lac St. Francis.

Traverse, Rivière à la, runs into the St. Lawrence a little above Pointe au Chêne, amongst the St. Regis Islands.

Trent River, runs out of the Rice Lake, and discharges itself into the head of the Bay of Quinté. Some miles up this river there are salt springs, three gallons of the water making one gallon of salt: the natives make sufficient for their use. [A. Jones gives as the native name of the Trent, Sangi-chi-wig-e-wonk = Strong waters: rapids.]

Trois Chenaux Écartés, Isle de, in the River St. Lawrence, opposite the township of Osnabruck, contains from 600 to 700 acres: the soil good. [The Three Disused Channels.]

Trous Leveillier, on the Ottawa River, between the Petit Detroit and the portage Roche Capitaine. [Trou = Hole. Leveiller, proper name.]

Turkey Island, sometimes called Petite Isle aux Indes, is situated in the River Detroit, between the lower end of Fighting Island and

the marsh of the River Canards: it lies in front of the north-west angle of the Huron reserve. ["On y trouve des Poules d'Inde et des Cignes en quantitè": thus Hennepin reports of this neighbourhood. Nouveau Voyage, chap. xix.]

Turkey Point, in the township of Charlotteville, situated in the bay of Long Point, Lake Erie, affords a harbour with a channel to it, of sufficient depth of water for any vessel: above the point is the town-plot and site for the barracks.

Turtle Island. A small island at the entrance of the Miami bay.

Two Rivers, The, run into Lake Ontario, near the centre of the township of Darlington. [A. Jones gives as a conjoint term for the 15 and 16 mile creeks (from Burlington Bay), Nan-swau-sink = Two creeks near each other. Properly, Nah-sah-gah-way, Where the stream forks or divides.]

U

Urfe River, afterwards called Grand River, now the Ouse, Lake Erie. [From D'Urfé, a French proper name.]

Uxbridge, in the east riding of the County of York, is to the northward in the rear of Pickering. Second Edition. [From Uxbridge in Middlesex, or in compliment to the Earl of Uxbridge of the day.]

V

Vaughan Township, in the east riding of the County of York, lies on the west side of Yonge Street, in the rear of, and to the northward of, the township of York. [From the fourth Viscount Vaughan, (1793,) who was also Earl of Lisburn.]

Vesey Cape, in the township of Marysburgh, on Lake Ontario, is the northern point which makes Prince Edward's Bay. [From Thomas Vesey, Baron Knapton, who was created Viscount de Vesci in 1776.]

Wabuscommong, is one of the lakes on the communication between Lake Simcoe and the Rice Lake. [= Rabbit Lake.]

Wainfleet Township, in the County of Lincoln, lies west of Humberstone, and fronts Lake Erie, being watered by the Welland to the north. [From the name of a market town in Lincolnshire, situated on a creek or inlet of the sea.]

Walpole Township, in the County of Norfolk, lies west of Rainham, and fronts Lake Erie. [From the distinguished English family name.]

Walsingham Township, lies west of Charlotteville, in the County of Norfolk, having the bay and marsh of Long Point in its front.

Wapose Island, in Lake Ontario, lies off the northerly point that makes Prince Edward's Bay, on the easterly shore of Marysburgh. [Wah-bose = Rabbit.]

Washquarter, or Weighqueta, afterwards called Lake Geneva, and now Burlington Bay, by proclamation, 16th July, 1792, is a very beautiful small lake, lying within the head of Lake Ontario, from which it is divided by a long beach : over the outlet has been erected a good bridge; and on the southern part of the beach, near the portage, is a good inn, erected by His Excellency Major-General Simcoe. [A. Jones gives the name as We-qua-te-tong, and says its meaning is simply Bay. The outlet, he says, was Pimmetetong-gonk = Creek running through the sand. Morgan says that Burlington Bay was called in the Mohawk dialect, De-o-na-sa-de-o = Where the sand forms a bar.]

Waveney River, in the County of Norfolk, rises in the township of Townsend, and running thence southerly, through the townships of Woodhouse and Walpole, discharges itself into Lake Erie, where it has about three feet water over the bar, and is a good harbour for batteaux. [The English Waveney falls into the Yare, not far from Yarmouth, Suffolk.]

Wenitagonk, runs into Lake Ontario, in the west part of the township of Clarke. [Perhaps the meaning is Frenchman's Creek. Baraga says Wemetigogi means Frenchman. He does not interpret the word, which, however, denotes "one who travels in a wooden canoe or boat."]

West Bay, Great, comprehends all that part of the Bay of Quinté from John's Island, upwards, to the head of the bay.

West Bay, lies in the south-west extremity of Lake Superior, within the Isles Royale and Philippeaux.

West Lake, lies between Sandy Bay and Little Sandy Bay, on Lake Ontario, east of the Isle de Quinté, and is in the township of Sophiasburgh.

Western District, The, was originally constituted and erected into a district by the name of the District of Hesse, in the Province of Quebec, by His Excellency Lord Dorchester's proclamation, of the 24th July, 1788. It received its present name by an Act of the Provincial Legislature : it is bounded southerly by Lake Erie ; eas-

terly by a meridian passing through the eastern extremity of Long Point, now the North Foreland, and comprehends all the lands north-westerly of those boundaries, not included within the bounds of the Hudson's Bay Company, or the territory of the United States. The boundary which divides it from Louisiana is not well known after reaching the sources of the Mississippi. [In the Second Edition the boundaries are given thus: Southerly by Lake Erie; easterly by the London district; on the west by the Detroit, Lake St. Clair, and River St. Clair; and on the north by the River Huron.]

Westminster Township, is situated upon the River Thames, adjoining to London.

Whitby Township, in the east riding of the County of York, lies west of Darlington, and fronts Lake Ontario. [From a seaport of Yorkshire at the mouth of the Eske.]

Whitchurch Township, in the east riding of the County of York, fronts to Yonge Street, and lies to the northward of Markham. [There are five places of this name in England; the one in Shropshire has an ancient free school.]

Whitefish Island, at the east end of Lake Superior, a little west of the Isle aux Rables, and near to which the lake forces its passage by the Falls of St. Mary. [Otchipway for Whitefish is Atikameg, Deerfish.]

Williamsburgh Township, in the County of Dundas, is the fifth township in ascending the river St. Lawrence. [A compliment to Prince William, Duke of Clarence.]

Willoughby Township, in the County of Lincoln, lies between Bertie and the River Welland, on the west side of Niagara River. [Willoughby, a parish in Warwickshire, with Roman remains. Christopher Willoughby was created a baronet in 1794.]

Winchester Township, in the County of Dundas, lies in the rear, and to the northward of Williamsburgh.

Windham Township, in the County of Norfolk, lies in the rear and north of Charlotteville. [From the distinguished statesman, temp. George III. His bust, by Nollekins, is is Fellbrigg Church, Norfolk.]

Wolfe Island, in the County of Ontario, lies opposite to Kingston and Pittsburgh, in the narrow part, where Lake Ontario forces into the St. Lawrence. [The solitary local memorial of General Wolfe in Upper Canada.]

Wolford Township, lies partly in the Township of Grenville and partly in Leeds, in the rear and to the north of the townships of

Elizabethtown and Augusta, and is washed by the River Rideau. [From the name of the family seat of Lieut.-General Simcoe, near Honiton, in Devonshire.]

Woodhouse Township, in the County of Norfolk, lies west of Walpole, and fronts Lake Erie. [Several families of distinction bear this name in the English Norfolk. Sir John Wodehouse was raised to the peerage in 1797, as Baron Wodehouse, of Kimberley, in the County of Norfolk.]

Woods, Lake of the. See Lac du Bois.

Wye, River, runs from a small lake near the north-west end of Lake Simcoe, into Gloucester Bay, Lake Huron.

Y

Yarmouth Township, in the County of Norfolk, lies to the west of Houghton, and fronts Lake Erie. [Probably a compliment to Francis Seymour, Lord Conway, who in 1793 was made Earl of Yarmouth.]

Yonge Street, is the direct communication from York to Lake Simcoe, opened during the administration of His Excellency Major-General Lieut.-Governor Simcoe, who, having visited Lake Huron by Lake aux Claies, (formerly also called Ouentaronk, or Sinion, and now named Lake Simcoe,) discovered the harbour of Penetanguishene (now Gloucester) to be fit for shipping, and resolved on improving the communication from Lake Ontario to Lake Huron by this short route, thereby avoiding the circuitous passage of Lake Erie. This street has been opened in a direct line, and the road made by the troops of His Excellency's corps. It is thirty miles from York to Holland's River, at the pine fort called Gwillimbury, where the road ends: from thence you descend into Lake Simcoe, and having passed it there are two passages into Lake Huron—the one by the River Severn, which conveys the waters of Lake Simcoe into Gloucester Bay; the other by a small portage, a continuation of Yonge Street, to a small lake, which also runs into Gloucester Bay: this communication affords many advantages; merchandise from Montreal to Michilimackinac may be sent this way at ten or fifteen pounds less expense per ton, than by the route of the Grand or Ottawa River; and the merchandise from New York, to be sent up the North and Mohawk rivers for the north-west trade, finding its way into Lake Ontario at Oswego (Fort Ontario), the advantage will certainly be felt of transporting goods from Oswego to York, and from thence across Yonge

Street, and down the waters of Lake Simcoe into Lake Huron, in preference to sending it by Lake Erie. [This street was named from Sir George Yonge, a member of the Imperial Government, temp. Geo. III. He was of a distinguished Devonshire family.]

Yonge Township, in the County of Leeds, is the tenth township in ascending the River St. Lawrence.

York County, consists of two ridings, the east and west. The east riding is bounded on the east by the westernmost line of the County of Durham ; on the south by Lake Ontario, until it meets the eastern boundary of a tract of land belonging to the Mississaga Indians ; on the west by the easternmost boundary line of the said tract, running north 16 deg. west, the distance of 28 miles, thence north 74 deg. east, 14 miles, thence south 16 deg. east, 16 miles to the southern boundary of the lands belonging to the Indians, and thence along the said tract parallel to Lake Ontario, until it meets the north-westernmost boundary of the County of Durham. The west riding of the County of York is bounded on the east by the westernmost line of a tract of land belonging to the Mississaga Indians, running north 45 deg. west, to the River La Tranche (to be called the Thames); on the south by Burlington Bay and the carrying-place leading through the Mohawk village, to where it intersects the River La Tranche, or Thames; and theuce up that river to the north-westernmost boundary of a tract of land belonging to the Mississaga Indians. The boundaries of this county were established by proclamation the 16th July, 1792. It sends, in conjunction with the County of Durham and the first riding of the County of Lincoln, one representative to the Provincial Parliament. [In the Second Edition, instead of "the eastern boundary of a tract of land, &c.," the description reads thus, "the eastern boundary of Toronto township, which, with the Mississaga tract,* gives its western limits; and on the north by Holland's

*The following is the text of the Instrument finally surrendering the Mississaga tract. (It used to be said that the whole tract was obtained by the Crown for the sum of ten shillings. It will be seen that this was a consideration named simply *pro formâ*. The object of the document was to quiet the title of the Crown, the original deed having been imperfectly filled up. The paper asserts, it will be observed, that "divers good and valuable considerations" had been received: it is not specified, however, what these were, the original document here showing a blank):—THIS INDENTURE made at the River Credit, on Lake Ontario, on the first day of August, in the year of our Lord One Thousand Eight Hundred and Five, between William Claus, Esquire, Deputy Superintendent-General and Deputy Inspector-General of Indians and of their affairs, for and in behalf of our Sovereign Lord the King, of the one part, and the Principal Chiefs, Warriors and People of the Mississaga Nation of Indians, for and in the name of the said Nation of the other part. WHEREAS on the twenty-third day of September, in the year

River, Lake Simcoe, and Talbot River, until it meets the north-westernmost boundary of the County of Durham. The west riding of the County of York is bounded on the east by the townships of King, Vaughan, and York; on the south by the Lake Ontario, Burlington Bay, and Dundas Street; on the west by the London district; and on

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of our Lord One Thousand Seven Hundred and Eighty-seven, at the Carrying Place at the head of the Bay of Quinté, it was agreed between the Honorable Sir John Johnson, Baronet, on the part of our said Lord the King, and Wabukanyne, Neace, and Pakquan, Principal Chiefs and War Chiefs of the said Mississagua Nation; two of which said Chiefs, that is to say, Wabukanyne and Neace, are now dead; that they the last mentioned Principal Chiefs would for divers good and valuable considerations received by them for and on account of their said Nation from our said Lord the King, duly convey all their right and title to a certain Tract or Parcel of Land hereinafter described, to our said Lord the King, his Heirs and Successors for ever. And WHEREAS in pursuance of that agreement a certain Instrument hereunto annexed was made at the said Carrying Place, bearing date the day and year last aforesaid, signed and sealed by the said Wabukanyne, Neace, and Pakquam, for the purpose of conveying the said Tract or Parcel of Land to our said Lord the King, his Heirs and Successors as aforesaid, which said Instrument did not ascertain or describe the Parcel or Tract of Land meant and intended to be conveyed thereby, and was and is in other respects defective and imperfect. Now this Indenture witnesseth that for carrying into execution the said agreement made on the said Twenty-third day of September, One Thousand Seven Hundred and Eighty-seven, and in consideration thereof, and for the more effectually securing and conveying to our said Lord the King the said Tract or Parcel of Land so agreed to be conveyed to him as aforesaid, and for the consideration of Ten Shillings of good and lawful money in hand paid to them by the said William Claus, Esq., for and on account of our said Lord the King, the receipt whereof by the said Principal Chiefs, Warriors, and People of the Mississagua Nation as aforesaid, is hereby acknowledged, have granted, bargained, aliened, released and confirmed, and by these Presents do grant, bargain, alien, release and confirm unto our Sovereign Lord the King, his Heirs and Successors, all that Tract or Parcel of Land commencing on the east bank of the south outlet of the River Etobicoke; thence up the same, following the several windings and turnings of the said river, to a Maple Tree blazed on four sides, at the distance of three miles and three quarters in a straight line from the mouth of the said river; thence north sixty-eight degrees east fourteen miles; thence south twenty-two degrees east, twenty-eight miles more or less, to Lake Ontario; thence westerly along the water's edge of Lake Ontario to the eastern bank of the south outlet of the River Etobicoke, being the place of beginning, containing two hundred and fifty thousand eight hundred and eighty acres, together with all the Woods and Waters thereon lying and being, and all the advantages, emoluments, and hereditaments whatsoever to the said Tract or Parcel of Land belonging or in anywise appertaining, and the issues and profits of all and singular the said premises and every part and parcel thereof with the appurtenances; and also all the estate, right, title, interest, property, claim and demand whatsoever of them the said Principal Chiefs, Warriors, and People of the Mississagua Nation for themselves, and for and in the name of their whole Nation, in and to all and singular the said premises and every part and parcel thereof, with the appurtenances, save and except the Fishery in the said River Etobicoke, which they the said Chiefs, Warriors, and People expressly reserve for the sole use of themselves and the Mississagua Nation: To have and to hold all and singular the said Tract or Parcel of Land, hereditaments, and premises in and by these presents released and confirmed unto our Sovereign Lord the King, his Heirs and Successors for ever, and to and for no other use, intent or purpose whatsoever. And also that His Majesty, his Heirs and Successors as aforesaid, shall and may at all times for ever hereafter peaceably and quietly have, hold, occupy, possess, and enjoy all and singular the said Tract or Parcel of Land with the appurtenances and every part and parcel thereof, without trouble, hindrance, molestation, interruption, or disturbance of them the said Principal Chiefs, Warriors, and People of the Mississagua Nation, or any of them, their Heirs or Successors, or any other person or per-

the north by the County of Simcoe. It sends, in conjunction, &c." In a note on a former page, a copy of the surrender of the Mississaga tract to the Crown has been given. In the subdivision of counties the proper signification of "riding," *i. e.*, "thriding," third part, is ignored.]

York is about 43 deg. and 35 min. of north latitude, and is the present seat of Government of Upper Canada. It is most beautifully situated within an excellent harbour of the same name, made by a long peninsula which confines a basin of water sufficiently large to contain a considerable fleet. On the extremity of the peninsula, which is called Gibraltar Point, are commodious stores and block-houses, which command the entrance to the harbour. On the main-land, opposite to the point, is the garrison, situated in a fork made by the harbour and a small rivulet which, being improved by sluices, affords an easy access for boats to go up to the stores. The barracks being built on a knoll, are well situated for health, and command a delightful prospect of the lake to the west, and of the harbour to the east. The Government house is about two miles above the garrison, near the head of the harbour, and the town is increasing rapidly: the River Don empties itself into the harbour a little above the town, running through a marsh which when drained will afford most beauful and fruitful meadows. This has already been commenced in a small degree, which will no doubt encourage further attempts. The long beach or peninsula, which affords a most delightful ride, is considered so healthy by the Indians that they resort to it whenever indisposed; and so soon as the bridge over the Don is finished, it will, of course, be most generally resorted to, not only for pleasure but as the most convenient road to the heights of Scarborough. The ground which has been prepared for the Government house is situated between the town and the River Don, on a most beautiful spot, the vicinity of which is well suited for gardens and a park. The oaks are in general large; the soil is excellent, and well watered with creeks, one

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sons lawfully claiming or to claim by from or under them or any of them. In witness whereof we have hereunto affixed our marks and seals the day and year above written, having first heard this Instrument openly read and rehearsed in our own language, and fully approved by ourselves and our Nation.

(Signed.) W. Claus, Dep. Supt.-General, on behalf of the Crown. [L S.]

Chechalk, Quenepenon, Wabukanyne, Okemapenegse, Wabenose, Kebonecense, Osenego, Acheton. [Each has his totem traced.]

Present at the Execution and Delivery of this Instrument, and witnesses thereto: John Williams, Captain, 49th Regiment; John Brackenbury, Ensign, 49th Regiment; P. Selby, Assist. Secretary, I. A.; I. B. Rousseau.

of which, by means of a short dam, may be thrown into all the streets of the town. Vessels of all sizes may be conveniently built here, and a kind of terrace or second bank in front of the town, affords an excellent situation for a rope walk. The remains of the old French Fort Toronto stand a little to the westward of the present garrison, and the River Humber discharges itself into Lake Ontario about two miles and a half west of that: on this river and the Don are excellent mills, and all the waters abound in fish. In winter the harbour is frozen, and affords excellent ice for the amusement of northern countries, driving in traineaus. The climate of York is temperate, and well sheltered from the northerly winds by the high lands in the rear. The Yonge Street leads from hence to Lake Simcoe, and the Dundas Street crosses the rear of the town. [In the Second Edition the following passages are omitted: "Which (*i.e.*, the garrison creek), being improved by sluices, affords an easy access for boats to go up to the stores. The ground set apart for the Government house is situated on a most beautiful spot, the vicinity of which is well suited for gardens and a park. The oaks are in general large; the soil is excellent, and well watered with creeks, one of which, by means of a short dam, may be thrown into all the streets of the town." The sluicing of the garrison creek, and the transformation of a stream to the east into a reservoir for the supply of water to be "thrown into all the streets of the town," are curious but bold ideas. Was the latter stream that in the ravine which now forms part of St. James's cemetery? In the second edition the Government house is stated to be "about two miles from the east end of the town, at the entrance of the harbour." This was the residence destroyed when the magazine exploded in 1813. The bridge over the Don is spoken of as finished, *i.e.*, a floating bridge near the outlet of the river. The name "York" was conferred on the town in honour of the King's second son, Frederick, Duke of York. On the 27th of August, 1793, a royal salute was fired in the harbour, to celebrate a success recently gained by the troops under the command of the Duke in Holland, and "to commemorate the naming of this harbour from his English title, York."

York Township, is in the east riding of the County of York, and lies to the west of Scarborough, having the River Humber for its western limit: its front is principally occupied by a long sandy beach, which forms the harbour. The rest of the township in front is open to Lake Ontario.

SKETCH OF THE LENGTH AND CIRCUMFERENCE OF THE FOLLOWING LAKES IN UPPER CANADA, BY ESTIMATION.

LAKES.	Greatest Length in Miles.	Circumference following the Shores.
Erie	200	610
George	25	58
Huron	250	1100
Michigan	260	945
Ontario	160	450
St. Clair	30	100
Superior	410	1525

TABLE OF LATITUDES AND LONGITUDES, FROM THE INFORMATION HITHERTO RECEIVED.

PPLACES.	North Latitude.			West Longitude.		
	Deg.	Min.	Sec.	Deg.	Min.	Sec.
Detroit	42	38	0	81	40	
Do. River's Mouth	41	52				
Erie Fort	42	53	17			
Grand Remou	44	50				
Kingston	44	8	9	75	41	
Landguard	42	7	15			
Long Point, Carrying Place	41	39	21			
Michilimackinac	45	48	34			
Michigan Lake, South end	41	8				
Manitou Islands	44	46				
Niagara	43	15	47	78	25	
Oswego	43	20	0	75	43	
Ontario Lake, head of	43	47	3			
St. Regis	45					
York	43	35		50	29	

SKETCH OF THE ISLANDS IN THE FOLLOWING LAKES OF UPPER CANADA.

Lake Erie.—Bass Islands, Isle Bois Blanc, Isle Celeron, Cunningham's Island, East Sister, Grosse Island, Middle Island, Middle Sister, St. George's Island, Ship Island, Turtle Island, West Sister.

Lake Huron.—La Cloche, Duck Islands, Flat Islands, Grosse Isle, Isle Traverse, Manitou Islands, Michilimackinac, Prince William's Island, St. Joseph Island.

Lake Ontario.—Amherst Island, Isle La Barque, Carleton Island, Isle de Petit Cataraqui, Cedar Island, Isle Cauchois, Isle au Cochan, Isle du Chêne, Duck Islands, Duck Islands, Isle La Force or La Forté, Isle au Forêt, Gage Island, Grand Isle, Gull Island, Howe Island, Nicholas Island, Orphan Island, Isle De Quinté, Isle Tonti, Petite Isle Tonti, Isle aux Tourtes, Wolfe Island, Wapoose Island.

Lake St. Clair.—Island Chenal Ecarté, Harsen's Island, Hay Island, Peach Island, Thompson's Island.

Lake Superior.—Isle Grange, Isle de Minatte, Michipicoten, Isle Montreal, Patié Island, Isles aux Rables, White Fish Island.

FINIS.

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POSTSCRIPT.

Since the foregoing notes have come from the press, the Editor is informed that the Dundas Street has been considerably improved between the head of Lake Ontario and York, and that the Government has contracted for the opening of it from that city to the head of the Bay of Quinté, a distance of 120 miles, as well as for causewaying of the swamps and erecting the necessary bridges; so that it is hoped in a short time there will be a tolerable road from Quebec to the capital of the Upper Province.

Lands have been appropriated in the rear of York as a refuge for some French royalists, and their settlement has commenced.

In consequence of the increase of population, and for other reasons, an Act of the Provincial Parliament has lately passed for the further division of the Province, by which the districts are divided into twice their late number. Nineteen covered waggons with families came in to settle in the vicinity of the County of Lincoln about the month of June last, and the facility with which some of these people travel, particularly in crossing the small rivers, deserves to be noticed. The body of their waggons is made of close boards, and the most clever have the ingenuity to caulk the seams, and so by shifting off the body from the carriage, it serves to transport the wheels and the family.

The salt springs in the vicinity of the Trent have not proved so productive as, from the first report of them, it was hoped they would.

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—JULY, 1875.

Latitude—43° 39′4 *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal.	Tension of Vapour.				Relative Humidity				Direction of Wind.				Velocity of the Wind.					Rain in inches	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M.	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
1	29.777	29.812	29.822	29.8042	58.9°	69.4°	58.9°	62.45°	— 3.87°	.316	.223	.338	.286	63	31	68	53	N W	N W	W	N 56° W	13.0	14.4	4.2	9.29	10.15	...	...
2	.831	.763	.699	.7540	56.4	69.4	54.2	61.20	— 5.30	.338	.282	.290	.305	74	39	68	58	N W	E	N E	S 74 E	2.4	7.4	2.7	2.68	4.98	...	...
3	.655	.608	.528	.5943	55.3	70.5	64.0	63.25	— 3.45	.299	.403	.427	.381	68	54	71	65	N E	E	N E	N 68 E	4.7	8.0	3.3	5.86	6.63	...	...
4	.490	.490	.560	.5190	63.0	84.0	75.0	74.25	+ 7.36	—	—	—	—	—	—	—	—	E	S	N	S 7 W	2.6	12.0	3.2	3.34	5.44	.180	...
5	.675	.694	.691	.6857	68.3	71.5	65.4	68.00	+ 0.93	.569	.555	.607	.579	82	72	97	85	N E	N E	S E	N 37 E	1.0	3.5	1.8	2.40	3.48	.200	...
6	.689	.611	.698	.6678	63.2	70.5	65.0	66.48	— 0.77	.543	.644	.559	.582	94	86	91	90	S W	E	N	N 17 E	0.4	8.4	4.7	1.04	3.97	.910	...
7	.801	.851	.887	.8520	63.6	73.7	65.8	67.27	— 0.10	.458	.572	.428	.474	78	69	67	70	N W	S	N W	N 66 W	6.4	8.2	5.2	1.45	5.08	...	...
8	.916	.899	.826	.8768	63.6	74.8	62.5	67.15	— 0.38	.458	.558	.460	.486	78	65	81	73	N	S	S E	N 16 E	8.0	7.0	2.4	0.88	5.14	...	...
9	.764	.668	.557	.6547	60.4	75.5	62.5	66.62	— 1.05	.475	.549	.501	.493	90	62	89	77	N E	S	S	S 14 E	0.8	4.8	2.0	1.80	3.24	...	...
10	.481	.356	.417	.4025	63.4	82.0	62.5	69.08	— 1.30	.540	.610	.291	.460	93	56	51	65	S	W	N W	S 85 W	3.8	20.0	17.0	7.50	10.22	...	...
11	.520	.552	.560	.5498	56.0	67.9	58.0	60.60	— 6.29	—	—	—	—	—	—	—	—	W	S	W	S 76 W	5.5	10.0	4.8	4.20	6.92	...	...
12	.584	.517	.440	.5017	52.8	71.5	58.2	62.75	— 5.25	.332	.433	.360	.380	83	56	74	67	W	S E	S E	S 20 E	2.0	10.0	3.0	3.41	4.81	...	...
13	.365	.352	.429	.3848	61.1	76.6	60.0	66.67	— 1.42	.442	.430	.396	.430	82	47	76	67	N E	W	N W	N 81 W	1.6	21.5	3.4	7.66	9.54	...	...
14	.440	.443	.435	.4375	55.8	72.8	60.4	64.38	— 3.80	.379	.441	.402	.418	85	55	76	70	N W	S	N E	S 4 E	3.8	9.5	4.4	2.66	5.15	...	...
15	.443	.398	.352	.3942	57.8	75.1	65.0	66.58	— 1.67	.402	.478	.468	.461	84	55	76	72	N E	E	E	N 88 E	1.2	9.2	3.2	3.67	4.37	...	...
16	.327	.341	.413	.3585	66.1	72.3	65.8	69.62	+ 1.33	.614	.694	.562	.623	95	87	88	86	S W	S	N W	N 88 W	4.0	3.0	10.4	2.30	6.50	.210	...
17	.469	.523	.480	.4863	64.3	70.5	64.0	66.80	— 1.55	.461	.433	.427	.455	76	58	72	69	N	S E	N E	N 59 E	6.0	10.4	4.8	2.80	7.70	...	...
18	.400	.450	.684	.5292	59.0	72.0	62.0	64.42	— 3.97	—	—	—	—	—	—	—	—	N	N	N W	N 20 W	7.0	18.0	7.0	8.66	9.43	.180	...
19	.756	.759	.695	.7368	57.1	74.1	58.5	64.38	— 4.03	.351	.384	.416	.387	75	45	85	66	N W	S	S W	S 14 W	3.4	10.0	2.8	2.26	6.50	...	...
20	.654	.556	.476	.5513	56.8	75.2	64.3	66.98	— 1.47	.355	.450	.473	.421	77	52	78	65	N	S	S W	S 10 W	0.2	11.5	3.0	3.54	5.67	...	...
21	.464	.465	.540	.4947	60.7	77.3	57.8	65.93	— 2.53	.376	.287	.354	.337	70	31	74	57	W	W	N	N 80 W	13.5	22.5	1.7	11.93	12.32	...	...
22	.496	.399	.363	.4183	59.3	79.5	66.5	68.60	+ 0.13	.453	.613	.538	.542	90	61	83	78	N E	S	W	S 8 W	0.8	17.0	3.4	5.70	7.38	...	...
23	.451	.500	.604	.5297	58.2	74.8	60.4	64.93	— 3.52	.325	.375	.353	.341	67	43	67	57	N W	N W	N W	N 64 W	7.0	11·2	4.5	6.35	7.87	...	...
24	.689	.699	.702	.6955	55.0	72.3	64.0	64.72	— 3.73	.313	.396	.465	.395	72	50	78	65	N W	S E	S	S 17 W	7.6	11.2	4.4	4.25	7.45	...	...
25	.700	.663	.628	.6568	60.0	78.0	71.0	70.77	+ 2.36	—	—	—	—	—	—	—	—	E	S	S	S 35 E	2.0	10.0	4.4	4.80	6.02	...	...
26	.597	.571	.661	.6145	67.9	76.2	68.7	72.28	+ 3.92	.636	.611	.496	.583	93	68	71	76	S W	W	N W	S 53 W	2.6	13.0	5.0	4·33	6.40	.070	...
27	.692	.668	.629	.6603	62.5	78.0	67.2	69.23	+ 0.87	.352	.266	.410	.346	61	27	61	51	N W	N W	S W	N 55 W	4.9	15.6	1.4	6.90	7.41	...	...
28	.603	.574	.548	.5740	64.3	77.3	65.8	69.87	+ 1.57	.449	.355	.495	.417	74	38	77	59	W	S	N	S 42 W	6.8	11.4	3.9	4.62	6.95	...	...
29	.493	.467	.466	.4762	60.7	75.9	68.3	69.37	+ 1.13	.376	.482	.515	.467	70	54	74	65	E	S E	S W	S 57 E	3.8	7.2	7.2	1.99	5.25	...	...
30	.509	.604	.719	.6255	65.0	78.9	55.3	65.78	— 2.42	.341	.359	.353	.336	55	36	81	55	W	N W	N W	N 56 W	10.6	12.0	8.0	9.84	10.83	...	...
31	.806	.789	.796	.7968	57.5	67.6	61.4	63.45	— 4.68	.323	.433	.317	.360	68	64	58	61	N	S	N	N 26 E	4.0	9.6	8.4	0.98	7.47	...	...
	29.5980	29.5820	29.5905	29.5898	60.45	74.36	63.17	66.57	— 1.34	.418	.456	.433	.435	78	54	75	67	...	...	...	...	4.56	11.21	4.70	...	6.78	1.810	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR JULY, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer..... 29.942 at 8 a.m. on 8th. } Monthly range
Lowest Barometer..... 29.327 at 6 a.m. on 16th } 0.615.

Self-registering Ther.
- Maximum temperature.....88°0 on 26th. } Monthly range 41°6.
- Minimum temperature.....46°4 on 11th. }
- Mean maximum temperature .....77°25. } Mean daily range 21°50.
- Mean minimum temperature .....55°75. }
- Greatest daily range.....28°1 from a.m. to p.m. of 11th.
- Least daily range.....12°6 from a.m. to p.m. of 17th.

Warmest day .....4th ; mean temperature .....74°25 } Difference=13°65.
Coldest day.....11th; mean temperature .....60°60 }

Maximum Solar .....140°0 on 28th. } Monthly range
Radiation Terrestrial ..... 27°2 on 11th. } 112.8.

Aurora observed on 2 nights, viz., 10th, and 13th.
Possible to see Aurora on 24 nights ; impossible on 7 nights.
Raining on 6 days; depth, 1.810 inches; duration of fall 18.1 hours.
Mean of cloudiness, 0.43.

WIND.

Resultant direction S. 88° W.; resultant velocity 1.69 miles.
Mean velocity 6.78 miles per hour.
Maximum velocity 23.5 miles, from 11 a.m. to noon of 21st.
Most windy day 21st; mean velocity 12.32 miles per hour.
Least windy day 5th ; mean velocity 3.48 miles per hour.
Most windy hour 2 p.m.; mean velocity 11.21 miles per hour.
Least windy hour 11 p.m.; mean velocity 4.18 miles per hour.

Fog on 5th and 26th.
Thunder on 5th, 6th and 16th.
Lightning on 3rd, 4th, 5th, 6th, 9th, 15th and 16th.
Solar halos on 1st and 31st.

COMPARATIVE TABLE FOR JULY.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel.	Mean Velocity.
	°	°	°	°	°					°		
1847	68.0	+ 0.6	87.0	43.2	43.8	18	3.355	...	...	...	...	0.19h.
1848	65.5	— 1.9	82.2	44.1	38.1	10	1.890	...	...	N 14 W	0.18	4.94mls
1849	68.4	+ 1.0	88.6	45.2	43.4	4	3.415	...	...	S 5 W	0.75	3.52
1850	68.9	+ 1.5	86.2	51.6	34.6	12	5.270	...	...	N 81 E	0.59	4.56
1851	65.0	— 2.0	82.7	46.5	36.2	12	3.625	...	...	N 60 W	0.88	4.13
1852	66.8	— 0.6	90.1	48.5	41.6	8	4.025	...	...	N 43 W	0.93	3.33
1853	65.6	— 1.8	91.3	41.6	49.7	10	0.915	...	...	S 58 E	0.24	3.69
1854	72.5	+ 5.1	98.0	42.5	55.5	9	4.805	...	...	S 49 W	0.37	4.03
1855	67.9	+ 0.5	92.8	49.2	43.6	13	3.245	...	...	S 19 W	0.73	6.47
1856	69.9	+ 2.5	96.6	49.5	47.1	8	1.120	...	...	N 79 W	1.57	5.84
1857	67.8	+ 0.4	86.6	47.0	39.6	5	3.475	...	...	S 68 E	0.81	4.74
1858	67.9	+ 0.5	85.0	52.0	33.0	13	3.072	...	...	N 15 E	1.13	5.76
1859	66.9	— 0.5	88.0	44.7	43.3	12	2.611	...	...	N 56 W	1.48	5.81
1860	63.9	— 3.5	88.0	43.8	44.2	13	4.356	...	...	N 60 W	2.15	7.29
1861	65.4	— 2.0	84.5	47.0	37.5	16	2.635	...	...	N 74 W	1.43	4.66
1862	66.7	— 0.7	95.5	48.2	47.3	15	5.344	...	...	S 89 W	1.42	5.80
1863	67.6	+ 0.2	83.5	48.0	35.5	15	3.408	...	...	N 18 W	0.40	3.89
1864	69.7	+ 2.3	90.2	49.0	41.2	8	1.332	...	...	N 61 W	2.23	6.00
1865	65.0	— 2.4	83.0	45.8	37.2	11	2.470	...	...	N 86 W	2.28	5.34
1866	70.4	+ 3.0	94.0	47.8	46.2	16	5.390	...	...	S 79 W	0.94	4.17
1867	68.2	+ 0.8	94.0	48.2	45.8	12	1.965	...	...	N 48 W	1.40	5.45
1868	75.8	+ 8.4	93.4	59.0	34.4	5	0.510	...	...	S 87 E	0.72	4.66
1869	64.5	— 2.9	84.9	49.8	35.1	13	4.610	...	...	S 67 W	2.01	5.07
1870	68.8	+ 1.4	87.4	48.0	39.4	16	1.896	...	...	S 78 W	1.59	4.82
1871	66.0	— 1.4	88.4	47.8	40.6	11	1.255	...	...	N 88 W	1.55	5.67
1872	70.2	+ 2.8	96.0	52.2	43.8	13	2.297	...	...	N 67 W	1.19	3.56
1873	68.4	+ 1.0	87.5	47.5	40.0	11	1.913	...	...	S 75 W	1.71	6.11
1874	67.9	+ 0.5	83.5	44.4	39.1	11	3.350	...	...	N 58 W	1.26	6.55
1875	66.6	— 0.8	88.0	46.4	41.6	6	1.810	...	...	S 88 W	1.69	6.78
Res'lts to 1874.	67.42	...	88.89	47.58	41.31	10.74	3.186	...	...	N 77 W	0.83	5.03
Excess for '75.	— 0.85	...	— 0.89	— 1.18	+ 0.29	— 4.74	— 1.376	...	...	...	...	+ 1.75

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—AUGUST, 1875.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario*, 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal.	Tension of Vapour.				Humidity of Air.				Direction of Wind.				Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 PM	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Resultant.	6 A.M.	2 P.M.	10 P.M.	Result't	MEAN		
1	29.860	29.838	29.830	29.8387	54.0°	61.8°	56.5°	57.80°	—10.26°	—	—	—	—	—	—	—	—	NE	E	N	N 50° E	5.2	7.6	6.0	6.56	7.28	...	...
2	.810	.809	.749	.7852	55.7	67.6	62.9	62.65	— 5.37	.284	.367	.417	.356	63	54	73	63	NE	E	E	N 68 E	12.2	20.5	9.0	10.44	10.97	...	...
3	.692	.670	.656	.6708	57.8	58.9	58.9	58.60	— 9.32	.449	.458	.482	.469	94	92	97	95	E	NE	NE	N 68 E	11.0	10.0	4.2	7.90	8.42	.200	...
4	.675	.644	.612	.6377	58.6	69.0	61.1	63.43	— 4.42	.474	.546	.504	.505	96	77	93	87	W	SE	E	S 33 E	4.0	9.0	2.4	2.12	4.29	.030	...
5	.588	.554	.483	.5352	61.8	71.2	63.2	65.82	— 1.93	.520	.559	.543	.550	94	73	94	87	S	SE	E	S 23 E	4.0	9.0	3.8	3.37	5.04	.010	...
6	.318	.198	.216	.2350	65.0	66.8	62.9	65.03	— 2.63	.532	.604	.479	.536	86	92	84	87	SE	SE	S	S 46 E	9.0	15.0	11.1	9.78	10.63	.400	...
7	.220	.335	.415	.3323	61.1	63.2	61.1	62.10	— 5.45	.491	.488	.479	.482	91	84	89	86	S	S	SW	S 10 W	10.5	17.0	8.2	11.28	11.88	...	...
8	.460	.510	.550	.5155	59.0	73.5	62.5	64.48	— 2.96	—	—	—	—	—	—	—	—	SW	SW	W	S 64 W	4.5	9.6	2.2	7.23	7.63	Inap.	...
9	.534	.514	.506	.5162	56.8	75.2	59.3	64.47	— 2.82	.439	.357	.454	.433	95	40	90	74	W	SW	S	S 68 W	1.6	5.5	1.8	4.04	5.15	...	...
10	.503	.471	.432	.4625	57.5	75.9	65.1	67.58	+ 0.42	.441	.571	.521	.532	93	63	86	79	S	SE	NE	S 30 E	1.4	11.9	7.2	3.28	5.73	...	...
11	.381	.387	.423	.4002	65.0	77.0	66.8	70.10	+ 3.05	.519	.616	.576	.578	84	66	88	79	NE	E	E	N 77 E	3.8	10.4	1.2	5.61	5.87	Inap.	...
12	.462	.472	.483	.4742	65.8	74.8	68.6	70.15	+ 3.25	.602	.631	.634	.631	95	73	90	86	E	SE	SE	S 56 E	1.8	8.7	2.0	4.15	4.83	Inap.	...
13	.513	.500	.520	.5127	65.1	77.0	65.4	69.25	+ 2.50	.531	.527	.501	.515	86	57	80	74	SW	S	W	S 4 E	2.8	14.0	0.6	5.55	6.24	...	...
14	.545	.516	.532	.5277	57.8	76.6	67.9	68.40	+ 1.82	.426	.549	.507	.500	88	59	74	72	W	S	SW	S 4 W	1.2	13.0	1.8	4.44	5.00	...	...
15	.530	.466	.420	.4698	57.5	74.4	69.0	68.40	+ 1.97	—	—	—	—	—	—	—	—	NW	E	NE	N 89 E	1.0	14.8	2.0	3.74	5.80	...	..
16	.425	.412	.438	.4268	64.3	79.1	64.7	69.38	+ 3.13	.568	.618	523	.564	94	62	86	79	Calm.	SE	NW	S 4 E	0.0	11.4	2.6	3.88	5.62	Inap.	...
17	.466	.450	.468	.4643	59.6	78.4	66.8	68.75	+ 2.68	.461	.463	.508	.502	90	47	77	73	W	SE	W	S 3 E	2.2	12.6	2.0	3.19	4.92	.010	...
18	.461	.436	.431	.4357	59.6	72.6	65.0	66.90	+ 0.98	.499	.527	.506	.514	98	66	82	79	NW	S	NW	S 84 W	2.4	7.6	14.0	0.77	5.83	.110	...
19	.427	.435	.491	.4613	63.2	70.1	60.4	64.45	— 1.23	.503	.538	.488	.510	87	73	93	85	NW	S	W	N 70 W	4.4	7.6	4.8	3.92	5.74	.020	...
20	.550	.544	.591	.5683	59.3	72.6	64.3	63.97	— 1.53	.441	.513	.528	.482	87	64	88	81	W	S	SW	S 24 W	5.4	11.8	4.6	4.61	5.90	.010	...
21	.622	.610	.719	.6637	59.6	69.7	60.7	63.47	— 1.82	.461	.551	.497	.500	90	76	94	86	SW	SE	SW	S 24 W	1.6	10.0	3.8	5.05	6.90	1.050	...
22	.770	.820	.930	.8500	53.5	66.0	54.0	57.72	— 7.33	—	—	—	—	—	—	—	—	W	W	NW	N 72 W	6.8	16.5	12.3	10.02	10.67	.040	...
23	.994	.979	.959	.9787	49.5	64.3	54.6	57.33	— 7.52	.269	.328	.331	.314	76	54	77	67	NW	E	N	N 21 E	7.0	9.6	5.7	4.87	7.25	...	...
24	.991	.961	.941	.9640	55.7	66.5	56.8	60.38	— 4.22	.380	.347	.344	.348	86	53	74	67	N	NE	NE	N 34 E	7.2	10.2	4.6	5.91	7.38	...	...
25	.945	.921	.853	.9038	54.6	69.4	60.0	62.28	— 2.07	.284	.381	.358	.359	66	53	69	64	NE	E	NE	N 68 E	6.4	11.4	5.0	6.58	7.00	...	...
26	.868	.839	.824	.8420	55.3	73.0	62.2	64.80	+ 0.70	.353	.399	.426	.409	81	49	76	68	NE	E	NE	N 74 E	4.6	10.0	4.4	6.42	7.12	...	...
27	.841	.813	.799	.8180	59.0	75.1	65.0	67.57	+ 3.73	.432	.521	.451	.485	86	60	73	73	N	SE	NE	N 80 E	6.0	8.0	5.2	4.24	5.67	...	...
28	.821	.750	.707	.7553	60.4	78.4	63.2	68.72	+ 5.15	.488	.523	.543	.531	93	54	93	78	NE	SE	E	S 84 E	2.2	5.4	3.5	2.70	4.65	...	...
29	.700	.660	.635	.6608	56.5	81.5	74.0	71.13	+ 7.81	—	—	—	—	—	—	—	—	NE	SE	N	S 35 E	0.6	9.5	8.3	1.76	5.50	...	...
30	.698	.626	.629	.6475	64.0	76.6	65.0	69.48	+ 6.42	.453	.445	.269	.401	76	48	43	56	W	S	N	N 45 W	3.4	10.0	9.2	3.35	7.71	...	...
31	.689	.667	.685	.6805	55.3	78.4	62.2	66.87	+ 4.67	.353	.394	.440	.397	81	40	78	63	W	SE	E	S 54 E	0.8	9.0	4.8	1.90	5.20	...	...
	29.6245	29.6067	29.6105	29.6140	58.96	72.08	62.91	65.21	— 0.75	448	.493	.474	.477	87	63	82	76	.....	.....	.....	.....	4.35	10.86	5.11	.....	6.76	1.880	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR AUGUST, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest barometer .....30.015 at 8 a.m. on 23rd } Monthly range=
Lowest barometer .....29.198 at 2 p.m. on 6th } 0.817.

Self-registering Ther.
- Maximum temperature .....81°9 on 29th } Monthly range=
- Minimum temperature .....48°0 on 23rd } 33°9.
- Mean maximum temperature .....74°39 } Mean daily range=
- Mean minimum temperature.....56°75 } 17°64.
- Greatest daily range.....27°7 from a.m. to p.m. of 29th.
- Least daily range ..... 5°9 from a.m. to p.m. of 6th.

Warmest day .....29th; mean temperature.....71°13 } Difference=13°80.
Coldest day.....23rd; mean temperature.....57°33 }

Maximum Radiation
- Solar .....143°2 on 9th } Monthly Range=
- Terrestrial ..... 35°0 on 23rd } 108°0.

No Aurora observed.

Possible to see Aurora on 19 nights; impossible on 12 nights.

Raining on 14 days; depth, 1.880 inches; duration of fall, 41.3 hours.

Mean of cloudiness, 0.51.

WIND.

Resultant direction, S 56° E.; resultant velocity, 1.58 miles.

Mean velocity, 6.70 miles per hour.

Maximum velocity, 20.5 miles, from 2 to 3 p.m. of 2nd.

Most windy day, 7th; mean velocity, 11.88 miles per hour.

Least windy day, 4th; mean velocity, 4.29 miles per hour.

Most windy hour, 2 p.m.; mean velocity, 10.86 miles per hour.

Least windy hour, 3 a.m.; mean velocity, 4.48 miles per hour.

Fog on the 18th, 27th, and 28th.

Solar halo on the 10th.

Lightning on 6th, 10th, 11th, 15th, 21st, and 27th.

Thunder on 6th, 15th, and 21st.

Considerable number of Shooting Stars observed on 10th and 31st.

COMPARATIVE TABLE FOR AUGUST.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Velo'y	Mean Velocity
	°	°	°	°	°					°	°	
1847	65.1	— 1.1	82.6	44.6	38.0	10	2.140	...	...	...	...	0.19 h.
1848	69.2	+ 3.0	87.0	48 7	38.3	8	0.855	...	...	S 21 E	0.98	4.55mls
1849	66.3	+ 0.1	79.0	49.0	30.0	10	4.970	...	...	N 71 W	0.60	3.76
1850	66.8	+ 0.6	85.0	41.0	44.0	13	4.355	...	...	N 15 W	0.35	4.46
1851	63.6	— 2.6	79.8	42.0	37.8	10	1.360	...	...	N 63 W	0.40	4.63
1852	65.9	— 0.3	81.2	45.8	35.4	9	2.695	...	...	N 70 E	0.56	3.30
1853	68.6	+ 2.4	94.9	42.5	52.4	11	2.575	...	...	S 36 E	0.30	4.26
1854	68.0	+ 1.8	99.2	45.6	53.6	5	0.455	...	...	N 64 W	1.76	4.60
1855	64.1	— 2.1	83.5	40.0	43.5	7	1.455	...	...	N 63 W	1.04	6.97
1856	63.6	— 2.6	82.7	41.5	41.2	12	1.680	...	...	N 50 W	2.88	7.03
1857	65.3	— 0.9	88.2	46.0	42.2	13	5.265	...	...	N 77 W	1.51	6.36
1858	67.6	+ 1.4	84.0	44.0	40.0	11	3.890	...	...	N 69 W	1.57	6.50
1859	66.6	+ 0.4	82.2	45.8	36.4	11	3.900	...	...	N 36 W	1.62	5.96
1860	64.5	— 1.7	87.0	46.8	40.2	14	3.405	...	...	N 70 W	1.83	5.80
1861	65.5	— 0.7	85.2	47.0	38.2	15	2.953	...	...	N 8 E	0.46	4.21
1862	67.6	+ 1.4	89.5	42.8	46.7	15	3.483	...	...	N 78 W	1.67	5.96
1863	66.6	+ 0.4	88.0	42.4	45.6	12	2.208	...	...	S 61 W	1.80	4.89
1864	68.6	+ 2.4	94.0	47.0	47.0	16	5.060	...	...	N 70 W	1.38	4.75
1865	65.2	— 1.0	87.8	44.4	43.4	8	1.990	...	...	N 60 W	1.55	5.07
1866	60.8	— 5.4	77.0	42.4	34.6	14	4.457	...	...	N 59 W	2.58	5.16
1867	68.1	+ 1.9	95.2	42.2	53.0	10	2.440	...	...	N 76 W	1.25	4.52
1868	67.2	+ 1.0	84 4	46.8	37.6	13	1.562	...	...	S 58 W	1.01	6.15
1869	63.6	— 2.6	89.0	43.5	45.5	11	4.273	...	...	N 42 W	1.98	5.13
1870	67.1	+ 0.9	84.0	40.0	44.0	14	3.422	...	...	N 75 W	1.80	5.92
1871	67 4	+ 1.2	89.5	46.0	43.5	8	2.800	...	...	N 52 W	1.09	6.86
1872	69.5	+ 3.3	91.8	51.0	40.8	19	2.405	...	...	N 51 W	1.43	3.73
1873	66.6	+ 0.4	85.0	46.4	38.6	12	1.913	...	...	N 84 E	1.35	5.56
1874	67.1	+ 0.9	95.0	48.0	47.0	4	0.880	...	...	N 23 E	0.70	6.16
1875	65.2	— 1.0	81.9	48.0	33.9	14	1.880	...	...	...	...	6.70
Resu'ts to 1874.	66.22	...	89.77	46.47	43.30	10.89	2.893	...	...	N 61 W	0.99	5.27
Excess for '75.	— 1.01	...	— 7.87	+ 1.53	— 9.40	+ 3.11	— 1.013	...	...	...	...	+ 1.43

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—SEPTEMBER, 1875.

Latitude—43° 39′4 *North.* *Longitude*—5*h.* 17*m.* 33*s.* *West.* *Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above aver'ge	Tension of Vapour.				Humidity of Air.				Direction of Wind.				Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	MEAN.	6 A.M	2 P.M.	10 PM	MEAN		6 A.M	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	6 A.M.	2 P.M.	10 P.M	Res'l-tant.	MEAN		
1	29.731	29.699	29.658	29.6945	56.0°	80.6°	66.5°	69.30°	+ 6.75	.389	.538	.507	.493	87	52	74	70	N	S E	S E	S 80° E	0.8	8.4	1.4	3.68	4.68	...	...
2	.633	.582	.544	.5898	66.8	75.9	69.4	71.55	+ 9.30	.604	.744	.703	.686	92	83	98	89	Calm.	S W	N W	S 40 W	0.0	8.5	4.8	2.63	3.87	.360	...
3	.521	.352	.218	.3460	67.9	73.0	68.7	70.40	+ 8.42	.590	.731	.636	.664	86	90	93	89	N E	E	S W	S 64 E	5.2	11.0	6.0	2.46	6.45	...	...
4	.253	.388	.541	.4020	65.4	66.5	52.1	62.40	+ 0.72	.581	.369	.397	.426	93	57	85	76	S W	W	W	S 81 W	11.4	26.0	5.4	14.41	15.08	...	...
5	.590	.430	.420	.4808	53.0	78.5	64.5	66.73	+ 5.34	—	—	—	—	—	—	—	—	S W	S W	W	S 40 W	3.4	14.0	3.6	7.34	8.05	...	...
6	.520	.521	.655	.5762	57.1	75.2	57.1	64.27	+ 3.22	.386	.315	.362	.351	82	36	72	61	S W	W	N W	N 39 W	4.8	23.5	9.0	4.31	11.80	...	...
7	.739	.712	.650	.7012	55.3	66.1	60.0	61.75	+ 1.03	.341	.315	.426	.379	78	49	81	70	N	S	S W	S 1 W	6.5	7.8	3.8	1.22	6.33	...	...
8	.643	.628	.667	.6485	57.5	78.8	63.2	67.93	+ 7.58	.441	.457	.423	.436	93	46	70	66	S W	S W	S W	S 33 W	3.9	10.0	4.2	6.75	6.83	Inap.	...
9	.669	.597	.437	.5482	60.0	78.4	66.9	69.62	+ 9.63	.468	.583	.621	.566	90	60	87	79	S	S	S	S 11 W	2.8	5.8	9.0	3.82	4.08	.060	...
10	.616	.823	.970	.8268	57.1	57.8	46.3	53.73	— 5.87	.409	.211	.228	.279	87	44	67	68	N	N	N	N 21 W	13.5	18.4	2.8	12.78	13.22	...	...
11	30.062	30.027	.945	30.0025	41.6	55.3	48.1	49.78	— 9.42	.173	.164	.248	.216	65	38	76	62	N	E	N E	N 51 E	5.6	9.2	7.6	6.18	7.59	...	...
12	29.900	29.789	.860	29.8448	48.0	64.7	50.0	56.12	— 2.70	—	—	—	—	—	—	—	—	N E	S	S W	S 26 E	4.4	13.0	2.0	5.03	7.75	...	...
13	.946	.963	.965	.9628	46.3	66.1	52.8	56.92	— 1.50	.282	.399	.344	.351	90	62	77	76	W	S	N W	S 4 W	4.4	9.0	1.6	2.51	4.19	...	...
14	.979	.928	.859	.9168	56.4	64.7	58.9	60.72	+ 2.70	.371	.357	.344	.358	82	58	68	68	N	S	S	S 2 E	1.0	7.0	2.0	1.06	3.45	.100	...
15	.756	.665	.596	.6612	53.9	64.7	58.9	59.58	+ 1.97	.371	.443	.492	.467	89	72	96	87	N W	S	N E	S 63 W	1.2	2.0	0.8	0.45	1.86	1.360	...
16	.476	.314	.382	.3885	58.5	49.9	41.2	50.53	— 6.68	.476	.336	.313	.345	97	93	97	94	N E	N E	N	N 45 E	12.6	17.6	9.0	9.82	10.73	...	...
17	.468	.547	.702	.5815	42.7	51.0	42.3	45.58	—11.20	.251	.201	.206	.213	91	53	77	71	N W	N	N W	N 30 W	11.6	17.8	10.0	11.56	11.84	...	...
18	.716	.634	.537	.6188	42.0	52.4	42.7	46.05	—10.32	.206	.221	.220	.210	76	57	79	68	N W	S	N E	N 26 W	4.4	8.0	3.6	0.59	4.57	.180	...
19	.400	.295	.230	.2975	42.0	54.0	50.6	49.78	— 6.17	—	—	—	—	—	—	—	—	E	E	S	S 81 E	13.4	13.4	13.5	11.11	12.01	.050	...
20	.257	.332	.599	.4135	42.0	53.1	41.6	46.83	— 8.72	.260	.296	.233	.268	97	73	83	84	S W	S W	W	S 70 W	4.4	10.2	7.6	7.74	10.16	...	...
21	.745	.785	.805	.7822	40.9	48.5	38.4	43.65	—11.47	.220	.166	.205	.198	86	48	75	71	N W	N W	N W	N 44 W	6.8	5.6	5.8	5.97	6.20	...	...
22	.849	.840	.898	.8683	33.3	49.5	37.6	41.17	—13.52	.181	.260	.195	.214	95	73	88	82	N W	N	N W	N 68 W	3.0	5.4	5.0	4.26	4.84	...	...
23	.933	.905	.902	.9157	32.6	57.8	45.2	47.43	— 6.83	.149	.287	.264	.245	80	60	76	73	N W	S	S W	S 23 W	2.0	11.2	3.0	5.56	7.47	...	...
24	.893	.781	.716	.7878	39.4	62.5	51.3	52.05	— 1.75	.222	.352	.290	.296	91	62	79	76	S W	S	S W	S 17 W	3.0	14.5	3.0	7.30	7.71	...	...
25	.618	.492	.529	.5433	45.2	54.6	44.5	50.08	— 3.33	.274	.352	.309	.313	90	82	93	86	S W	N W	N W	W	2.0	11.0	3.6	5.01	7.64	.010	...
26	.530	.476	.427	.4725	42.0	58.6	54.0	52.10	— 0.90	—	—	—	—	—	—	—	—	N W	W	W	S 80 W	4.2	17.0	12.5	8.57	9.48	...	...
27	.427	.292	.479	.4087	48.5	71.5	53.9	59.18	+ 6.58	.273	.291	.368	.312	80	37	85	65	S W	W	W	S 77 W	3.8	26.5	5.6	10.61	12.57	.100	...
28	.670	.741	.752	.7268	47.0	52.1	40.2	46.55	— 5.63	.292	.276	.234	.256	91	71	84	81	N E	S E	N E	N 61 E	8.6	10.6	5.4	4.90	7.84	Inap.	...
29	.673	.509	.328	.4823	40.2	47.0	44.8	44.77	— 6.98	.200	.234	.273	.241	81	73	92	82	N E	N E	N E	N 48 E	8.0	10.0	16.0	10.36	10.72	.250	...
30	.102	.233	.358	.2438	51.3	50.6	38.7	46.82	— 4.87	.352	.226	.185	.240	93	61	78	75	S W	W	N W	S 74 W	12.2	24.0	5.0	9.06	13.60	.140	...
	29.6438	29.6093	29.6210	29.6244	49.66	61.98	51.68	55.46	— 1.79	.337	.351	.347	.346	87	61	82	76	...	...	...	...	5.63	12.55	5.75	...	8.09	2.820	...

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR SEPTEMBER, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observavations The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants of the wind are from hourly observations.

Highest Barometer.....30.082 at 8 a.m. on 11th. } Monthly range
Lowest Barometer .....29.102 at 6 a.m. on 30th. } 0.980.

Self-registering Ther.
- Maximum temperature.....84°5 on 2nd. } Monthly range
- Minimum temperature.....32.0 on 23rd. } 52°5.
- Mean maximum temperature.....65°45 } Mean Daily range
- Mean minimum temperature.....46°21 } 19°24.
- Greatest daily range .....31°8 from a.m. to p.m. of 5th.
- Least daily range ..... 9°7 from a.m. to p.m. of 29th.

Warmest day ..... 2nd; mean temperature.....71°55 } Difference=30°38.
Coldest day .....22nd; mean temperature.....41°17 }

Maximum Radiation { Solar .....135°2 on 2nd. } Monthly range
Terrestrial ..... 19.8 on 22nd. } 115°4.

Aurora observed on 6 nights, viz., 2nd, 3rd, 4th, 8th, 20th and 30th.

Possible to see Aurora on 20 nights; impossible on 10 nights.

Raining on 13 days; depth, 2.820 inches; duration of fall, 53.9 hours.

Mean of cloudiness, 0.54.

WIND.

Resultant direction, S. 88° W.; resultant velocity, 1.89 miles.

Mean velocity, 8.09 miles per hour.

Maximum velocity, 27.0 miles, from noon to 1 p.m., of 4th.

Most windy day, 4th; mean velocity, 15.08 miles per hour.

Least windy day, 15th; mean velocity, 1.86 miles per hour.

Most windy hour, 1 p.m.; mean velocity, 13.16 miles per hour.

Least windy hour, 4 a.m.; mean velocity, 4.99 miles per hour.

Fog on 13th, 15th, 23rd, 24th, 25th and 30th.

Dew on 8 mornings.

Frost on 11th, 20th, 22nd, 23rd, 24th and 29th. Ice on 20th.

Solar halo on 8th. Lunar halos on 11th and 18th.

Lightning on 3rd, 5th, 8th and 29th. Thunder on 2nd, 3rd and 29th.

Rainbow on 12th.

COMPARATIVE TABLE FOR SEPTEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity.	Mean Velocity.
	°	°	°	°	°					°		
1847	55.6	— 2.6	74.5	35.0	39.5	15	6.665	...	...	...	...	0.33 lbs.
1848	54.2	— 4.0	80.4	28.1	52.3	11	3.115	...	...	N 71 W	2.38	5.81 mls.
1849	58.2	0.0	80.1	32.7	47.4	9	1.480	...	...	N 75 W	0.69	4.23
1850	56.5	— 1.7	76.0	29.5	46.5	11	1.735	...	...	S 65 W	1.02	4.78
1851	60.0	+ 1.8	86.3	32.0	54.3	9	2.665	...	...	N 14 E	1.03	5.45
1852	57.5	— 0.7	81.8	35.8	46.0	10	3.630	...	...	N 77 W	0.53	4.60
1853	58.8	+ 0.6	85.5	33.9	51.6	12	5.140	...	...	N	1.06	4.33
1854	61.0	+ 2.8	93.6	35.8	57.8	14	5.375	...	...	N 22 W	1.33	4.04
1855	59.5	+ 1.3	82.6	33.0	49.6	12	5.585	...	...	N 20 E	1.29	7.61
1856	57.1	— 1.1	78.4	35.0	43.4	13	4.105	...	...	S 79 W	1.98	6.53
1857	58.6	+ 0.4	82.0	34.1	47.9	11	2.640	...	...	N 68 W	1.61	6.55
1858	59.1	+ 0.9	81.4	35.6	45.8	8	0.735	...	...	S 74 W	1.53	5.69
1859	55.2	— 3.0	75.4	35.7	39.7	15	3.525	...	...	N 44 W	1.60	6.36
1860	55.3	— 2.9	75.8	28.7	47.1	14	1.959	...	...	N 71 W	2.63	5.79
1861	59.1	+ 0.9	78.8	37.1	41.7	17	3.607	...	...	N 71 W	1.39	4.81
1862	59.6	+ 1.4	79.4	39.0	40.4	9	2.344	...	...	N 59 W	1.07	5.11
1863	55.9	— 2.3	80.0	31.4	48.6	8	1.235	...	...	N 16 W	0.92	6.46
1864	56.4	— 1.8	73.0	37.8	35.2	11	2.508	...	...	N 38 W	1.89	7.06
1865	64.5	+ 6.3	90.5	42.0	48.5	12	2.450	...	...	S 56 E	0.47	4.12
1866	55.2	— 3.0	80.0	34.4	45.6	15	5.657	...	...	N 33 W	1.45	4.63
1867	57.9	— 0.3	87.0	31.8	55.2	9	1.226	...	...	N 37 W	1.48	5.43
1868	56.6	— 1.6	75.5	36.0	39.5	16	4.239	...	...	N 74 W	0.88	4.68
1869	60.7	+ 2.5	81.0	34.4	46.6	8	4.027	...	...	N 53 W	1.16	4.89
1870	61.8	+ 3.6	78.0	45.8	32.2	11	6.794	...	...	N 29 E	2.26	5.04
1871	54.8	— 3.4	81.8	34.0	47.8	8	1.290	...	...	N 74 W	1.72	5.50
1872	59.1	+ 0.9	84.4	38.2	46.2	16	2.526	...	...	N 79 W	1.47	5.24
1873	57.3	— 0.9	79.0	33.5	45.5	14	3.020	...	...	N 81 W	2.92	7.39
1874	63.3	+ 5.1	88.6	39.5	49.1	11	1.554	...	...	S 14 E	0.09	6.30
1875	55.5	— 2.7	84.5	32.0	52.5	13	2.820	...	...	S 88 W	1.89	8.09
Res'lts to 1874.	58.20	.....	81.10	34.99	46.11	11.29	3.597	..	...	N 56 W	1.09	5.53
Excess for 1875	— 2.74	.....	+ 3.40	— 2.99	+ 6.39	+ 1.71	— 0.777	...	...	...	...	+ 2.56

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—OCTOBER, 1875.

Latitude—43° 39′ 4″ *North. Longitude*—5*h.* 17*m.* 33*s. West. Elevation above Lake Ontario,* 108 *feet.*

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Normal	Tension of Vapour.				Humidity of Air.				Direction of Wind.				Velocity of Wind.					Rain in inches.	Snow in inches.
	6 A. M.	2 P. M.	10 P. M.	Mean.	6 A. M.	2 P. M.	10 PM	MEAN		6 A. M.	2 P. M.	10 P. M.	M'N.	6 A. M.	2 P. M.	10 P. M.	M'N.	6 A. M.	2 P. M.	10 P. M.	Res'l-tant.	6 A. M.	2 P. M.	10 P. M.	Res'l-tant.	MEAN.		
1	29.372	29.381	29.548	29.4408	36.5°	50.3°	38.3°	41.03°	— 9.95°	.172	.221	.182	.195	79	60	78	75	N	N W	N W	N 26° W	5.6	10.8	5.8	7.79	8.06	...	...
2	.654	.773	.906	.8002	35.5	52.4	36.2	42.32	— 8.27	.176	.242	.194	.204	85	60	90	76	N W	W	N W	N 80 W	4.8	17.0	3.0	7.49	7.83	...	...
3	.920	.764	.680	.7707	38.5	57.5	48.5	48.83	— 1.39	—	—	—	—	—	—	—	—	N E	S	S W	S 5 W	3.0	14.0	3.4	5.42	7.89	...	...
4	.583	.590	.647	.6073	51.0	58.5	49.9	53.27	+ 3.42	.346	.416	.336	.365	92	85	93	89	S W	N	N	N 59 W	3.2	8.0	5.2	2.62	6.52	.060	...
5	.682	.752	.814	.7530	45.2	45.6	44.1	44.97	— 4.55	.296	.282	.251	.276	98	92	87	92	N E	E	N E	N 56 W	3.2	7.0	9.0	5.40	5.67	.020	...
6	.662	.357	.265	.4252	39.8	48.5	52.1	47.03	— 2.10	.225	.314	.342	.289	91	92	87	88	N E	N E	S W	N 68 E	18.0	17.5	21.0	8.74	16.00	1.310	...
7	.625	.678	.619	.6480	43.0	50.6	44.5	46.28	— 2.50	.247	.226	.267	.251	89	61	91	81	W	W	S	S 82 W	9.0	11.4	2.4	9.49	10.15	.020	...
8	.548	.574	.796	.6492	43.4	50.3	35.1	43.47	— 4.98	.269	.211	.165	.218	96	57	80	77	S W	W	N W	N 77 W	3.8	20.5	2.8	7.75	9.77	.090	...
9	.836	.714	.540	.6763	34.4	47.0	45.9	42.82	— 5.32	.183	.223	.256	.223	91	69	83	81	N	S E	E	N 81 E	4.4	11.0	10.8	5.69	8.14	020	...
10	.350	.360	.430	.3867	46.0	52.0	36.5	44.58	— 3.23	—	—	—	—	—	—	—	—	S W	W	W	S 66 W	7.2	20.0	9.6	8.47	11.31	.020	...
11	.551	.676	.837	.7078	33.3	43.0	34.4	37.15	—10.37	.172	.184	.158	.168	90	65	79	76	W	N W	N W	N 54 W	3.8	13.8	8.2	8.27	8.67	...	...
12	.926	.984	30.028	.9893	31.1	38.4	29.7	33.13	—14.05	.159	.122	.131	.137	91	52	80	73	N W	N W	N W	N 54 W	6.8	14.0	3.4	7.00	7.03	...	...
13	30.034	.966	29.893	.9585	31.9	45.6	34.0	37.22	— 9.68	.158	.195	.156	.170	87	64	78	76	W	S E	S W	S 12 W	6.2	8.2	3.8	2.88	5.17	...	...
14	29.778	.598	.441	.5892	31.9	55.0	47.7	46.23	— 0.37	.165	.269	.244	.232	92	62	74	75	S E	S	S E	S 24 E	4.2	12.0	5.0	6.92	7.32	...	...
15	.277	.213	.211	.2287	47.0	48.8	47.0	47.72	+ 1.37	.282	.320	.303	.305	87	93	94	92	S E	S	S W	S 3 W	2.0	7.4	2.8	4.94	5.42	.160	...
16	.263	.338	.454	.3623	38.0	38.3	34.4	36.42	— 9.65	.229	.156	.174	.182	100	68	88	85	N W	N W	N W	N 45 W	12.4	20.0	10.0	14.16	14.67	Inap.	...
17	.430	.371	.330	.3715	31.0	38.0	41.5	37.65	— 8.14	—	—	—	—	—	—	—	—	S W	S E	N E	S 14 E	1.0	7.4	4.6	0.88	6.40	.090	3.3
18	.468	.683	.858	.6927	36.0	34.8	33.3	34.48	—11.05	.196	.146	.142	.161	92	72	74	80	N W	N W	N W	N 29 W	11.0	13.5	4.2	9.14	9.57	...	...
19	.933	.901	.853	.8867	32.2	42.7	39.8	38.47	— 6.80	.162	.179	.196	.179	89	65	80	77	W	S	S W	S 68 W	4.0	9.8	6.8	3.94	5.21	...	...
20	.773	.650	.555	.6448	37.3	57.1	48.4	47.60	+ 2.55	.195	.264	.246	.231	87	56	71	71	S W	S W	S W	S 40 W	4.2	12.5	6.0	8.63	8.73	...	...
21	.490	.485	.573	.5190	45.2	56.8	51.0	51.10	+ 6.30	.277	.300	.280	.285	92	65	75	76	S W	S	N W	S 50 W	7.3	6.4	4.6	4.18	5.37	...	...
22	.613	.547	.495	.5538	43.0	56.0	43.0	46.75	+ 2.18	.238	.322	.210	.248	86	72	76	77	N	S E	N E	N 70 E	5.8	3.8	1.1	2.28	4.53	...	...
23	.453	.407	.405	.4190	47.4	61.8	50.3	53.70	+ 9.38	.308	.346	.310	.314	94	62	85	77	S W	S W	S W	S 36 W	4.6	8.0	2.8	4.70	5.44	...	...
24	.375	.330	.310	.3325	45.5	62.0	48.0	51.33	+ 7.28	—	—	—	—	—	—	—	—	S W	S	S W	S 30 W	2.0	7.8	3.5	4.27	4.35	...	...
25	.475	.623	.631	.5770	46.3	49.5	44.5	45.82	+ 2.02	.241	.269	.246	.246	77	76	84	80	N W	N	E	N 21 W	13.5	5.8	17.0	4.90	10.23	Inap.	...
26	.351	.173	.202	.2347	45.2	48.8	43.4	45.80	+ 2.22	.246	.320	.205	.255	81	92	73	82	E	S W	S W	S 88 E	22.5	7.9	12.0	6.45	14.42	.255	...
27	.173	.348	.612	.4035	38.7	42.3	36.2	38.70	— 4.65	.160	.193	.167	.171	68	71	78	72	S W	W	W	S 70 W	19.5	24.0	9.0	16.50	16.64	.010	...
28	.718	.606	.538	.6148	32.9	39.8	40.5	37.92	— 5.18	.167	.179	.208	.184	89	73	82	80	N	E	N E	N 61 E	1.0	16.5	16.5	7.51	9.32	...	...
29	.542	.494	.418	.4677	39.1	39.8	41.2	39.92	— 2.95	.215	.206	.235	.224	90	84	90	91	N E	E	E	N 68 E	5.7	16.0	16.0	11.55	11.73	.150	...
30	.009	.023	.230	.1002	50.3	48.1	38.7	44.98	+ 2.35	.337	.199	.151	.228	92	58	63	72	E	S W	W	S 36 W	7.2	32.0	17.5	7.81	17.08	.210	...
31	.260	.300	.400	.3283	35.0	37.5	30.0	33.50	— 8.90	—	—	—	—	—	—	—	—	W	W	W	S 88 W	17.5	19.0	17.0	19.92	20.08	...	0.5
	29.5524	29.5374	29.5651	29.5529	39.73	48.28	41.55	43.23	— 3.06	.224	.242	.221	.228	89	70	81	80	.....	.....	.....	.....	7.24	13.00	7.90	.....	9.31	2.415	3.8

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR OCTOBER, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M. and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer ..... 30.036 at mid. on 12th } Monthly range=
Lowest Barometer ..... 28.960 at 8 a.m. on 30th } 1.076.

Self-registering Ther.
- Maximum temperature ..... 63°0 on 23rd, 24th } Monthly range=
- Minimum temperature ..... 27.6 on 14th } 35°4
- Mean maximum temperature ..... 50°92 } Mean daily range=
- Mean minimum temperature ..... 35°88 } 15°04
- Greatest daily range ..... 25°5 from a.m. to p.m. of 14th.
- Least daily range ..... 4°5 from a.m to p.m of 5th.

Warmest day ..... 23rd; mean temperature 53°70 } Difference=20°57.
Coldest day ..... 12th; mean temperature 33°13 }

Maximum Radiation { Solar ..... 118°0 on 2nd } Monthly range=
Maximum Radiation { Terrestrial ..... 11°2 on 12th } 106°8.

No Aurora observed.

Possible to see Aurora on 17 nights; impossible on 14 nights.

Raining on 15 days; depth, 2.415 inches; duration of fall, 52.4 hours.

Snowing on 2 days; depth 3.8 inches; duration of fall 9.5 hours.

Mean of Cloudiness=0.69.

WIND.

Resultant direction, N. 88° W.; Resultant Velocity, 2.52 miles.

Mean Velocity, 9.31 miles per hour.

Maximum Velocity, 32.0 miles from 2 to 3 p.m. of 30th.

Most Windy day, 31st; Mean Velocity, 20.08 miles per hour.

Least Windy day, 24th; Mean Velocity, 4.35 miles per hour.

Most Windy hour, Noon; Mean Velocity, 13.17 miles per hour.

Least Windy hour, 4 a.m.; Mean Velocity, 7.14 miles per hour.

First Snow of season on 17th.

Solar halos on 20th, 23rd and 24th.

Lunar halo on 14th.

Rainbow on 27th.

Fog on 5th, 9th, 12th, 14th and 15th.

COMPARATIVE TABLE FOR OCTOBER.

YEAR.	TEMPERATURE. Mean.	Excess above Average.	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	V'locity.	Mean Velocity.
	°	°	°	°	°					°		
1847	44.0	— 1.9	64.6	20.4	44.2	13	4.390	2	Inap	...	...	0.19 lbs.
1848	46.3	+ 0.4	61.8	24.5	37.3	11	1.550	0	0.0	N 54 W	1.24	4.60mls.
1849	45.3	— 0.6	58.9	24.2	34.7	13	5.965	1	Inap.	N 12 W	1.27	7.76
1850	45.4	— 0.5	66.7	22.4	44.3	10	2.085	0	0.0	N 66 W	1.10	5.30
1851	47.4	+ 1.5	66.2	25.2	41.0	10	1.680	2	0.3	S 72 W	1.06	4.39
1852	48.0	+ 2.1	70.7	23.8	46.9	12	5.280	0	0.0	N 5 E	1.19	4.47
1853	44.4	— 1.5	64.7	23.4	41.3	10	0.875	2	Inap.	S 88 W	1.74	4.77
1854	49.5	+ 3.6	75.4	26.4	49.0	15	1.495	3	Inap.	N 45 W	1.52	4.57
1855	45.4	— 0.5	68.0	22.6	45.4	14	2.485	5	0.8	N 82 W	4.91	9.88
1856	45.3	— 0.6	71.4	23.0	48.4	10	0.875	2	0.1	N 76 W	2.15	6.07
1857	45.4	— 0.5	64.0	26.5	37.5	10	1.040	2	0.2	N 19 W	2.93	6.24
1858	48.8	+ 2.9	76.3	31.5	44.8	17	1.797	1	Inap.	N 34 W	0.36	5.96
1859	43.0	— 2.9	69.8	22.3	47.5	11	0.940	4	Inap	N 68 W	5.04	8.12
1860	47.3	+ 1.4	68.0	28.4	39.6	15	1.618	1	Inap.	N 9 W	2.00	6.93
1861	48.7	+ 2.8	71.0	29.0	42.0	15	1.993	1	Inap.	N 61 W	1.06	5.96
1862	48.7	+ 2.8	76.6	26.2	50.4	19	2.684	2	0.5	N 78 W	2.89	6.53
1863	45.9	0.0	66.4	30.5	35.9	16	2.522	0	0.0	S 71 W	0.48	6.16
1864	45.2	— 0.7	67.0	28.0	39.0	22	3.321	1	Inap.	N 60 W	3.17	6.66
1865	44.5	— 1.4	71.4	21.6	49.8	17	2.705	3	4.5	N 36 W	3.15	7.26
1866	49.1	+ 3.2	71.0	31.8	39.2	11	2.470	1	Inap	N 30 W	0.84	5.53
1867	49.9	+ 4.0	75.4	31.0	44.4	11	1.970	0	0.0	N 45 W	1.51	5.73
1868	42.4	— 3.5	67.6	24.0	43.6	10	1.365	2	2.0	N 89 W	1.27	7.10
1869	42.3	— 3.6	69.8	18.7	51.1	8	0.962	7	2.3	N 89 W	3.72	6.73
1870	50.0	+ 4.1	68.5	30.2	38.3	16	2.690	0	0.0	N 85 W	1.86	7.11
1871	48.3	+ 2.4	72.2	28.6	43.6	13	1.185	0	0.0	S 66 W	3.75	7.84
1872	45.6	— 0.3	70.0	25.2	44.8	14	3.288	1	Inap	N 18 W	2.22	4.59
1873	45.7	— 0.2	69.2	24.2	45.0	13	2.155	3	0.2	W	1.77	7.81
1874	47.5	+ 1.6	67.0	24.8	42.2	11	1.418	2	Inap.	N 70 W	2.75	6.40
1875	43.2	— 2.7	63.0	27.6	35.4	15	2.415	2	3.8	N 88 W	2.52	9.31
Res'lts to 1874.	45.89	.....	68.91	25.66	43.25	12.51	2.380	1.83	0.79	N 63 W	1.84	6.20
Excess for 1875	— 2.66	.....	— 5.91	+ 1.94	— 7·85	+ 2.49	+ 0.035	+ 0.17	+ 3.01	...	...	+ 3.11

MONTHLY METEOROLOGICAL REGISTER, AT THE MAGNETICAL OBSERVATORY, TORONTO, ONTARIO—NOVEMBER, 1875.

Latitude—43° 39′4 *North*. *Longitude*—5*h*. 17*m*. 33*s*. *West*. *Elevation above Lake Ontario*, 108 *feet*.

Day.	Barom. at temp. of 32°.				Temp. of the Air.				Excess of Mean above Average	Tension of Vapour.				Relative Humidity				Direction of Wind.				Velocity of the Wind.					Rain in inches	Snow in inches.
	6 A.M.	2 P.M.	10 P.M.	Mean.	6 A.M.	2 P.M.	10 P.M	MEAN		6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	M'N.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	6 A.M.	2 P.M.	10 P.M.	Res'l-tant.	MEAN		
					°	°	°	°	°																			
1	29.457	29.474	29.523	29.4813	31.5	34.8	32.2	32.95	— 9.22	.148	.132	.162	.146	83	65	89	78	W	W	W	S 80° W	19.2	15.5	4.5	13.50	13.67	...	...
2	.641	.749	.798	.7512	29.3	32.6	26.8	29.08	—12.84	.136	.106	.109	.115	85	57	75	73	N	N W	N	N 44 W	6.6	15.5	4.4	6.50	7.46	...	...
3	.754	.770	.520	.6300	24.3	29.7	30.1	28.10	—13.58	.123	.147	.150	.134	95	89	89	87	N	N E	N E	N 24 E	6.6	9.4	10.0	8.10	8.46	...	...
4	.478	.506	.591	.5312	30.1	38.0	27.5	31.98	— 9.43	.150	.128	.135	.138	89	55	90	77	N	N W	W	N 17 W	5.8	7.8	5.2	5.25	6.33	...	...
5	.640	.614	.701	.6485	31.1	40.2	35.5	35.58	— 5.57	.153	.132	.144	.144	87	53	69	70	W	W	W	N 79 W	3.2	14.0	2.6	5.54	5.82	...	...
6	.739	.777	.707	.7298	34.7	43.0	39.8	39.25	— 1.65	.154	.193	.196	.184	76	68	80	76	W	S	S W	S 27 W	4.4	7.0	5.3	5.50	6.10	...	...
7	.730	.762	.800	.7803	36.0	46.0	36.0	39.15	— 1.45	—	—	—	—	—	—	—	—	S W	N	N E	N 20 E	1.2	13.5	9.5	3.02	5.88	0.040	...
8	.879	.909	.950	.9225	32.6	36.0	30.4	33.28	— 7.03	.157	.162	.131	.153	85	76	77	80	N E	E	N E	N 51 E	5.0	7.0	4.4	6.07	6.37	...	...
9	.952	.969	.736	.8382	31.9	36.2	38.7	35.48	— 4.52	.158	.167	.186	.170	87	78	78	81	N E	N E	E	N 66 E	6.0	6.0	10.0	5.80	6.46	...	...
10	.538	.514	.432	.4502	38.7	38.7	37.3	38.05	— 1.62	.220	.231	.195	.216	94	98	87	94	S E	E	N W	N 52 E	7.5	2.6	5.6	2.02	5.67	.390	...
11	.548	.568	.515	.5197	31.1	42.7	37.6	37.45	— 1.85	.159	.205	.191	.188	91	75	85	84	W	S	S W	S 59 W	5.3	6.8	2.6	4.50	5.90	...	...
12	.520	.522	.511	.4893	34.4	49.9	43.8	43.23	+ 4.27	.174	.255	.227	.216	88	71	80	77	S W	S	N W	S 35 W	2.8	10.8	11.0	5.50	8.19	...	...
13	.572	.624	.584	.5963	39.4	39.1	32.2	36.43	— 2.17	.211	.155	.139	.171	87	65	76	79	N W	N W	N	N 28 W	11.9	9.5	10.6	9.89	10.48	.010	s
14	.400	.360	.340	.3583	28.0	32.0	29.0	28.83	— 9 39	—	—	—	—	—	—	—	—	N E	N E	N E	N 42 E	18.0	12.0	6.4	13.66	14.22	...	3.5
15	.300	.274	.286	.2513	28.6	36.2	38.3	34.42	— 3.42	.144	.201	.192	.180	92	93	83	90	N E	S E	S W	S 4 E	5.5	9.4	10.4	2.31	7.76	.030	...
16	.274	.230	.418	.3090	35.8	37.6	30.0	33.47	— 3.98	.189	.141	.106	.148	90	62	63	76	S W	W	W	S 84 W	8.2	28.0	18.0	13.61	14.81	.010	1.3
17	.686	.764	.916	.8320	22.8	29.0	26.8	26.20	—10.82	.094	.096	.102	.094	77	60	70	66	N W	N W	W	N 65 W	15.8	14.0	4.8	12.45	12.77	...	...
18	.812	.770	.285	.5200	30.1	34.4	37.6	34.70	— 1.90	.150	.136	.175	.160	89	68	77	79	S	S E	S	S 19 E	12.0	13.5	6.2	8.18	9.20	...	0.1
19	.173	.188	.525	.3618	40.9	39.4	35.8	38.88	+ 2.72	.211	.168	.173	.185	82	69	83	78	S W	W	S W	S 57 W	11.2	16.5	5.2	9.94	10.75	...	...
20	.667	.693	.662	.6680	34.4	37.6	35.5	34.68	— 1.03	.166	.140	.169	.152	84	62	80	75	N	E	S E	N 80 E	5.5	7.0	5.4	2.91	4.96	...	...
21	.630	.640	30.080	.8583	32.0	28.0	21.0	26.50	— 8.78	—	—	—	—	—	—	—	—	N W	W	W	N 72 W	3.6	26.0	10.0	12.07	12.74	...	...
22	30.173	30.225	30.020	30.1232	14.9	27.9	30.4	24.95	— 9.87	.075	.103	.123	.105	86	68	73	77	N	S	E	S 41 E	1.5	7.2	16.4	2.03	7.52	...	...
23	29.708	29.660	29.549	29.6003	37.3	39.8	37.6	38.12	+ 3.75	.137	.216	.166	.175	61	88	73	76	S	S W	W	S 14 W	11.0	8.7	6.6	5.89	9.93	...	...
24	.740	.854	30.137	.9822	33.3	30.8	27.5	29.92	— 3.98	.170	.118	.129	.133	89	69	86	80	W	N W	W	N 77 W	18.0	24.2	8.0	16.25	16.56	...	...
25	30.138	30.148	29.734	.9438	20.0	32.6	36.2	30.50	— 2.90	.099	.142	.143	.129	92	77	67	76	N W	S E	S E	S 62 E	2.0	12.0	10.8	5.80	8.94	...	...
26	29.440	29.416	.670	.5077	38.4	43.9	35.8	39.47	— 6.53	.226	.282	.156	.216	97	98	74	87	S E	S W	N W	S 59 W	6.2	6.2	14.0	4.90	10.71	.520	...
27	.869	.919	30.040	.9792	34.0	30.8	27.5	30.52	— 1.93	.156	.112	.129	.134	90	65	86	79	N W	N	N	N 25 W	9.0	11.0	4.0	7.07	8.98	...	s
28	·780	.733	29.450	.5817	30.0	32.9	35.0	33.17	+ 1.19	—	—	—	—	—	—	—	—	E	S E	S W	S 48 E	15.0	9.4	14.0	6.75	10.99	...	1.2
29	.667	.787	30.139	.9562	16.7	8.8	—1.0	7.05	—24.45	.066	.038	.035	.043	72	60	84	71	W	N W	N	N 68 W	38.0	29.5	8.8	22.41	24.80	...	0.1
30	30.158	30.161	29.980	30.0653	—3.8	3.7	3.7	1.07	—29.97	.035	.047	.047	.043	97	92	91	93	N	N	N E	N 10 E	9.0	8.0	10.0	8.90	9.33	...	1.6
	29.6688	29.6860	29.6866	29.6756	29.95	34.41	31.15	31.75	— 5.49	.148	.152	.147	.149	86	72	80	79	...	...	...	...	9.17	12.27	8.16	...	9.73	1.000	7.8

REMARKS ON TORONTO METEOROLOGICAL REGISTER FOR NOVEMBER, 1875.

NOTE.—The monthly means of the Barometer and Temperature include Sunday observations. The daily means, excepting those that relate to the wind, are derived from six observations daily, namely, at 6 A.M., 8 A.M., 2 P.M., 4 P.M., 10 P.M., and midnight. The means and resultants for the wind are from hourly observations.

Highest Barometer..... 30.271 at 10 a.m. on 22nd. } Monthly range
Lowest Barometer .....29.173 at 6 a.m. on 19th. } 1.098.

Self-registering Ther. { Maximum temperature.....51°0 on 12th. } Monthly range
Minimum temperature..... —5°8 on 30th. } 56°0.
Mean maximum temperature .....38°02. } Mean daily range
Mean minimum temperature .....25°51. } 12°51.
Greatest daily range.....37°5 from a.m. to p.m. of 29th.
Least daily range..... 4°0 from a.m. to p.m. of 10th.

Warmest day .....12th ; mean temperature .....43°23 } Difference=42°16.
Coldest day.....30th; mean temperature ..... 1°07 }

Maximum Radiation { Solar .....108°0 on 7th. } Monthly range
Terrestrial ..... —14°0 on 30th. } 122.0.

Aurora observed on 2 nights, viz., 21st and 22nd.

Possible to see Aurora on 13 nights ; impossible on 17 nights.

Raining on 6 days; depth, 1.000 inches; duration of fall 24.8 hours.

Snowing on 8 days; depth 7.8 inches; duration of fall 30.5 hours.

Mean of cloudiness, 0,77.

WIND.

Resultant direction N. 66° W.; resultant velocity 3.03 miles.

Mean velocity 9.73 miles per hour.

Maximum velocity 38.2 miles, from 3 to 4 a.m. of 29th.

Most windy day 29th; mean velocity 24.80 miles per hour.

Least windy day 20th ; mean velocity 4.96 miles per hour.

Most windy hour noon ; mean velocity 13.17 miles per hour.

Least windy hour 1 a.m.; mean velocity 8.05 miles per hour.

Lunar halo on the 12th.

The 30th was the coldest day during any November on the records of the Observatory.

COMPARATIVE TABLE FOR NOVEMBER.

YEAR.	TEMPERATURE. Mean.	Excess above aver'ge	Maximum.	Minimum.	Range.	RAIN. No. of days.	Inches.	SNOW. No. of days.	Inches.	WIND. Resultant. Direction.	Vel'y	Mean Velocity.
	°	°	°	°	°					°		
1847	38.6	+ 2.5	57.9	8.7	49.2	14	3.155	3	Inap.	...	...	0.56 lbs
1848	34.5	— 1.6	49.0	15.9	33.1	9	2.020	3	1.4	N 81 W	1.81	4.81mls
1849	42.8	+ 6.7	56.4	26.5	29.9	10	2.815	2	1.0	N 39 W	1.55	4.78
1850	38.8	+ 2.7	62.8	11.0	51.8	7	2.955	1	Inap.	N 42 W	1.43	5.27
1851	32.9	— 3.2	50.2	13.8	36.4	5	3.855	6	6.7	N 50 W	1.25	4.70
1852	36.0	— 0.1	50.4	18.2	32.2	7	1.775	3	2.0	N 59 W	1.53	6.50
1853	38.7	+ 2.7	55.6	12.8	42.8	15	2.425	6	2.7	N 9 W	0.55	5.52
1854	36.8	+ 0.7	55.4	13.8	41.6	13	1.115	4	1.3	West.	3.44	7.54
1855	38.6	+ 2.5	59.2	15.5	43.7	8	4.590	6	3.0	N 66 W	3.18	10.81
1856	37.4	+ 1.3	56.4	18.8	37.6	10	1.375	9	9.5	S 85 W	2.95	8.75
1857	33.5	— 2.6	58.2	— 3.5	61.7	14	3.235	9	6.9	S 61 W	5.45	9.25
1858	34.2	— 1.9	53.0	15.3	37.7	12	3.879	13	4.0	N 25 W	3.14	8.87
1859	38.9	+ 2.8	62.6	21.8	40.8	12	5.193	9	0.6	N 81 W	3.39	9.65
1860	37.9	+ 1.8	64.5	13.2	51.3	12	2.569	8	1.9	S 89 W	4.95	11.02
1861	37.1	+ 1.0	52.4	23.0	29.4	14	4.294	8	3.2	N 46 W	1.94	7.44
1862	35.6	— 0.5	58.0	16.2	41.8	11	2.205	11	5.3	N 46 W	3.00	6.60
1863	39.1	+ 3.0	67.0	17.8	49.2	13	3.656	6	0.1	N 88 W	3.50	7.86
1864	36.9	+ 0.8	60.2	21.0	39.2	11	3.765	8	4.5	S 72 W	3.82	7.64
1865	38.6	+ 2.5	63.2	23.6	39.6	5	0.975	7	1.1	N 79 W	2.98	7.90
1866	38.4	+ 2.3	54.2	21.8	32.4	13	2.963	4	2.2	N 88 W	3.06	6.96
1867	36.9	+ 0.8	60.4	9.6	50.8	8	1.835	9	0.9	N 87 W	4.02	7.76
1868	36.2	+ 0.1	50.5	20.1	30.4	14	5.150	10	4.3	N 35 W	2.10	8.16
1869	32.7	+ 3.4	58.0	13.0	45.0	9	2.540	18	10.2	N 78 W	3.69	8.12
1870	36.6	+ 0.5	57.2	19.4	37.8	6	0.594	5	3.1	N 89 W	4.36	8.74
1871	30.6	— 5.5	47.1	0.0	47.1	10	2.655	12	4.5	N 45 W	4.08	10.35
1872	32.9	— 3.2	52.0	8.2	43.8	7	0.420	9	1.3	S 85 W	5.02	7.48
1873	27.6	— 8.5	51.4	0.8	50.6	5	0.510	18	19.6	N 50 W	3.08	6.67
1874	34.6	— 1.5	61.0	3.5	57.5	7	0.935	11	11.7	S 87 W	3.07	7.70
1875	31.7	— 4.4	51.0	— 5.0	56.0	6	1.000	8	7.8	N 66 W	3.03	9.73
Res'lts to 1874.	36.11	...	56.58	14.28	42.30	9.71	2.798	7.37	3.99	N 77 W	2.77	7.66
Excess for '75	— 4.36	...	— 5.58	— 19.28	+ 13.70	— 3.71	— 1.798	+ 0.63	+ 3.81	...	...	+ 2.07

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